TC-765

UK Model
AEP Model
US Model
Canadian Model
PX Model

STEREO TAPE DECK

SPECIFICATIONS

GENERAL

Power Requirements: 120V ac, 60 Hz (US, Canadian model)
110V, 120V, 220V, 240V ac, 50/60 Hz (UK, AEP, PX model)

Power Consumption: 110W (US, Canadian model)
90W (UK, AEP model)
80W (PX model)

AC Outlet: 300W, unswitched (US, Canadian model)

Dimensions: Approx. 445 (w) x 525 (h) x 235 (d) mm
17 1/2 (w) x 20 5/8 (h) x 9 1/4 (d) inches
including projecting parts and controls

Weight: 26.5 kg, 58 lb 7 oz (US, Canadian model)
27 kg, 58 lb 8 oz (UK, AEP, PX model)

Track: 4-track 2-channel stereo recording and playback

Tape Speed: 19 cm/s (7 1/2 ips)
9.5 cm/s (3 3/4 ips)

Fast Forward and Rewind Time: Approx. 150 seconds with 740 m (2,400 ft) tape

Recording Time: With 1,100 m (3,600 ft), 27 cm reel
Stereo recording
180 minutes at 19 cm/s
Mono recording
720 minutes at 9.5 cm/s

Heads: Record head 1, Playback head 1
Erase head 1

Motors: AC servo-controlled capstan motor 1
Induction reel motor 2

Reel: Up to 27 cm (10 1/2-inch)

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!
COMPONENTS IDENTIFIED BY SHADING, ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LISTS ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY

SERVICE MANUAL

Frequency Response: With Sony Ferri-Chrome tape
30–25,000 Hz ± 3 dB at 19 cm/s
30–18,000 Hz ± 3 dB at 9.5 cm/s
With SLH tape
30–25,000 Hz ± 3 dB at 19 cm/s
30–18,000 Hz ± 3 dB at 9.5 cm/s
With regular tape
30–18,000 Hz ± 3 dB at 19 cm/s
30–15,000 Hz ± 3 dB at 9.5 cm/s

Wow and Flutter: NAB
0.04% WRMS at 19 cm/s
0.08% WRMS at 9.5 cm/s
DIN
±0.07% at 19 cm/s
±0.15% at 9.5 cm/s

S/N Ratio: 61 dB (NAB) with Sony Ferri-Chrome Tape
61 dB (DIN 1975 rev.) with Sony Ferri-Chrome Tape
56 dB (DIN, old)

Total Harmonic Distortion: 0.7%

Bias Frequency: 160 kHz

Equalization: 3,180 μS + 50 μS (19 cm/s)
3,180 μS + 90 μS (9.5 cm/s)

Inputs: MIC (two phone jacks)
Sensitivity: 0.2 mV (-72 dB)
Impedance: for low-impedance microphone
LINE IN (two phono jacks)
Sensitivity: 0.06 V (-22 dB)
Impedance: 100 kΩ
REC/PB (connector) (UK, AEP, PX model)
Input impedance: less than 10 kΩ

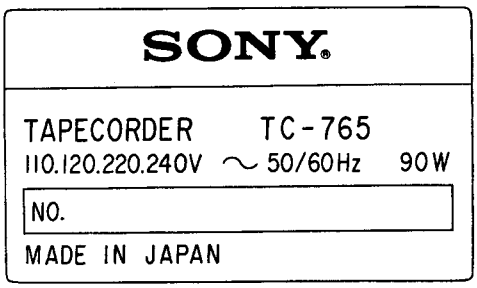
Outputs: LINE OUT (two phono jacks)
Normal level: 0.435 V (-5 dB) with PB LEVEL control set to center detent position
0.775 V (0 dB) with PB LEVEL control set to "10"
Load impedance: 100 kΩ
Suitable load impedance: more than 10 kΩ
HEADPHONES (binaural jack)
Load impedance: for low-impedance headphones
REC/PB (connector) (UK, AEP, PX model)
Output impedance: less than 10 kΩ

Other Jack: 11-pin remote control connector

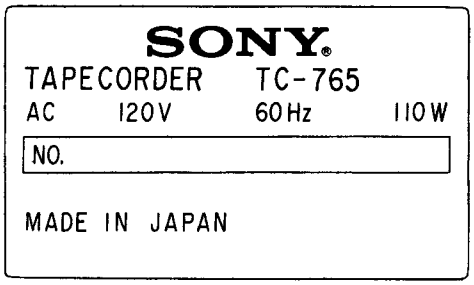
0 dB = 0.775 V

MODEL IDENTIFICATION
Specification label

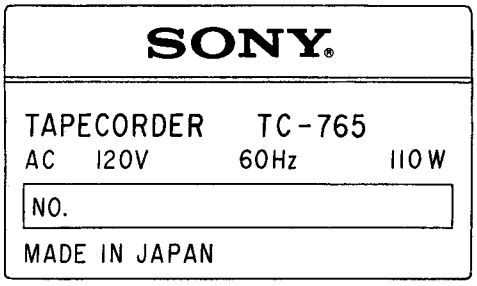
UK, AEP model



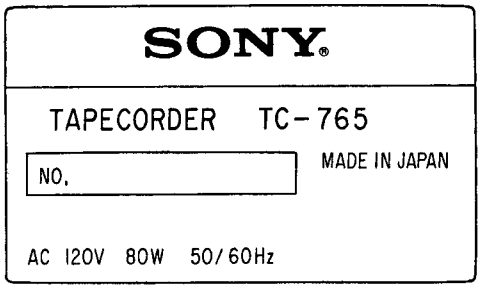
US model



Canadian model

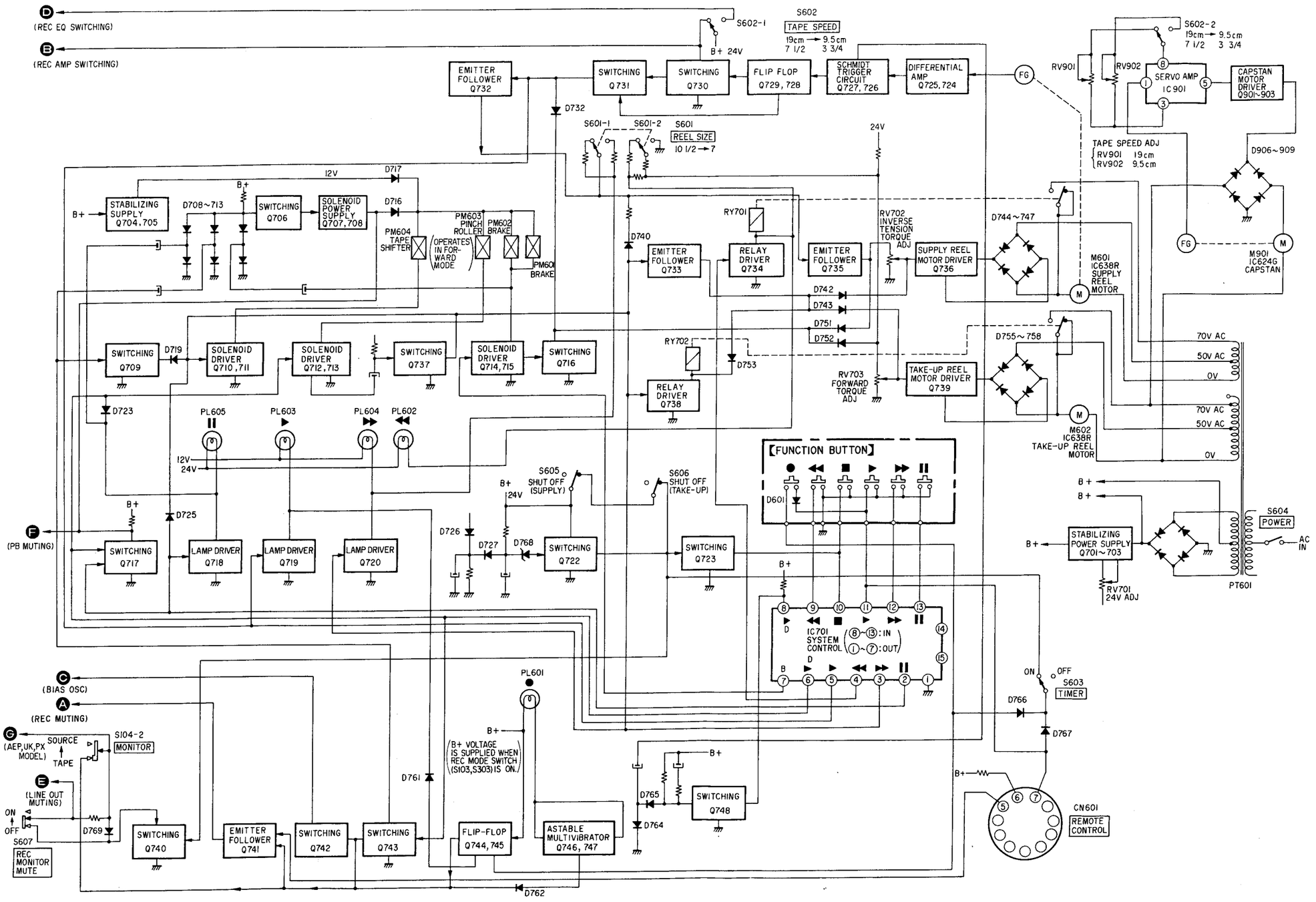


PX model

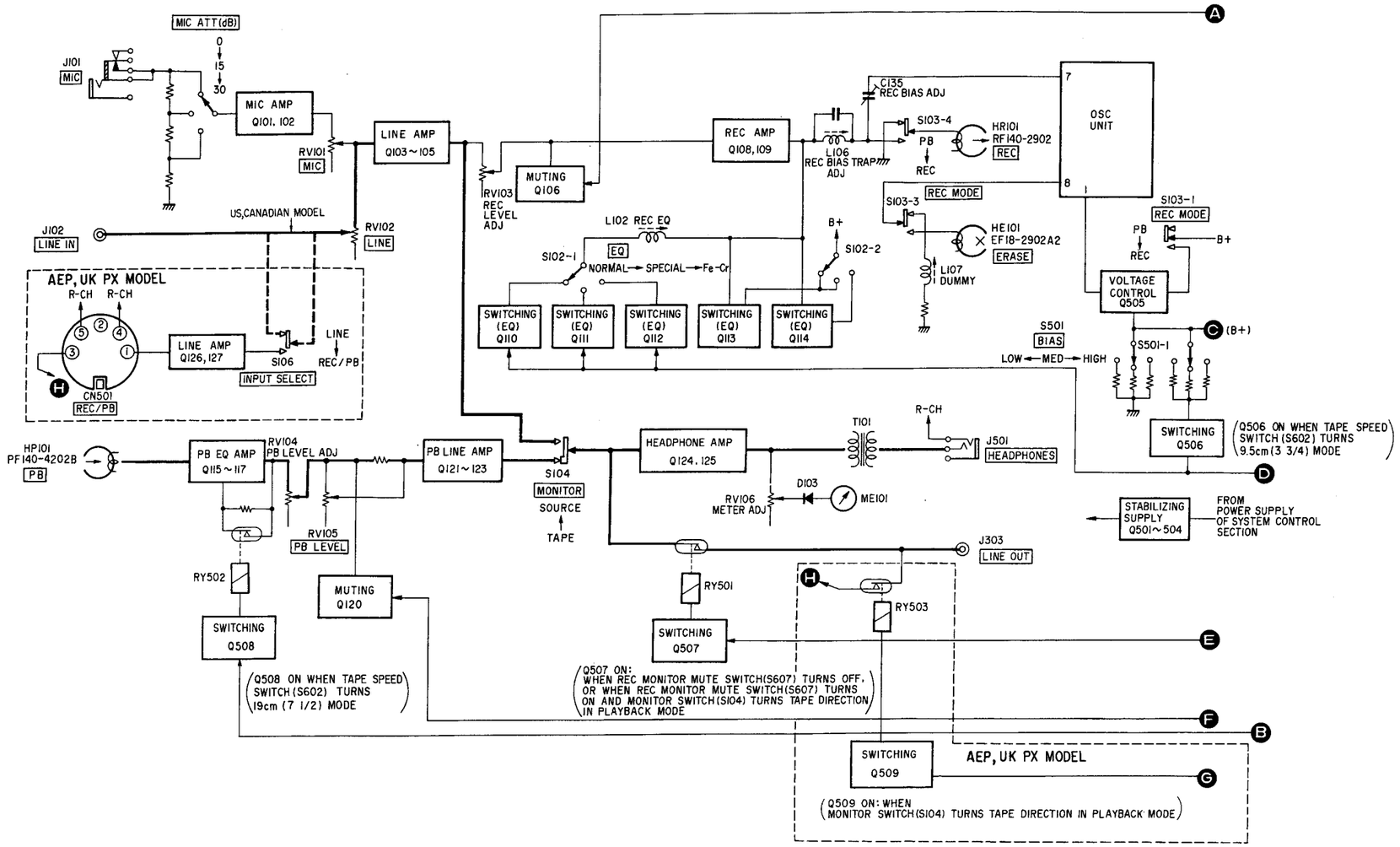


SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM — System Control Section —



1-2. BLOCK DIAGRAM — Amplifier Section —



1-3. NOTE ON REPAIRING

NOTE ON REPAIRING

1. This set does not change playback level when TAPE SELECT switches are changed.
2. The LINE OUT signal is cut when REC MONITOR MUTE switch (S607) on the rear panel is turned ON except when MONITOR switch is in TAPE position in playback mode.
3. If TIMER switch is previously set to ON position, it may happen to erase test tapes because the set becomes automatically in the auto playback (awakening) or auto record mode determined by REC MODE switch position when POWER switch is turned ON.
4. PB LEVEL controls on the front panel control LINE OUT and HEADPHONES levels, and also VU meters indicate the amount of PB LEVEL controlling. When PB LEVEL is in the center-click positions, LINE OUT levels are standard 0.44V (-5 dB) and VU meters indicate "0". When PB LEVEL controls are in their full-clockwise stops, LINE OUT levels are 0.775V (0 dB).
5. Three kinds of hexagonal-socket screwdrivers are needed for the following adjustment/removal.

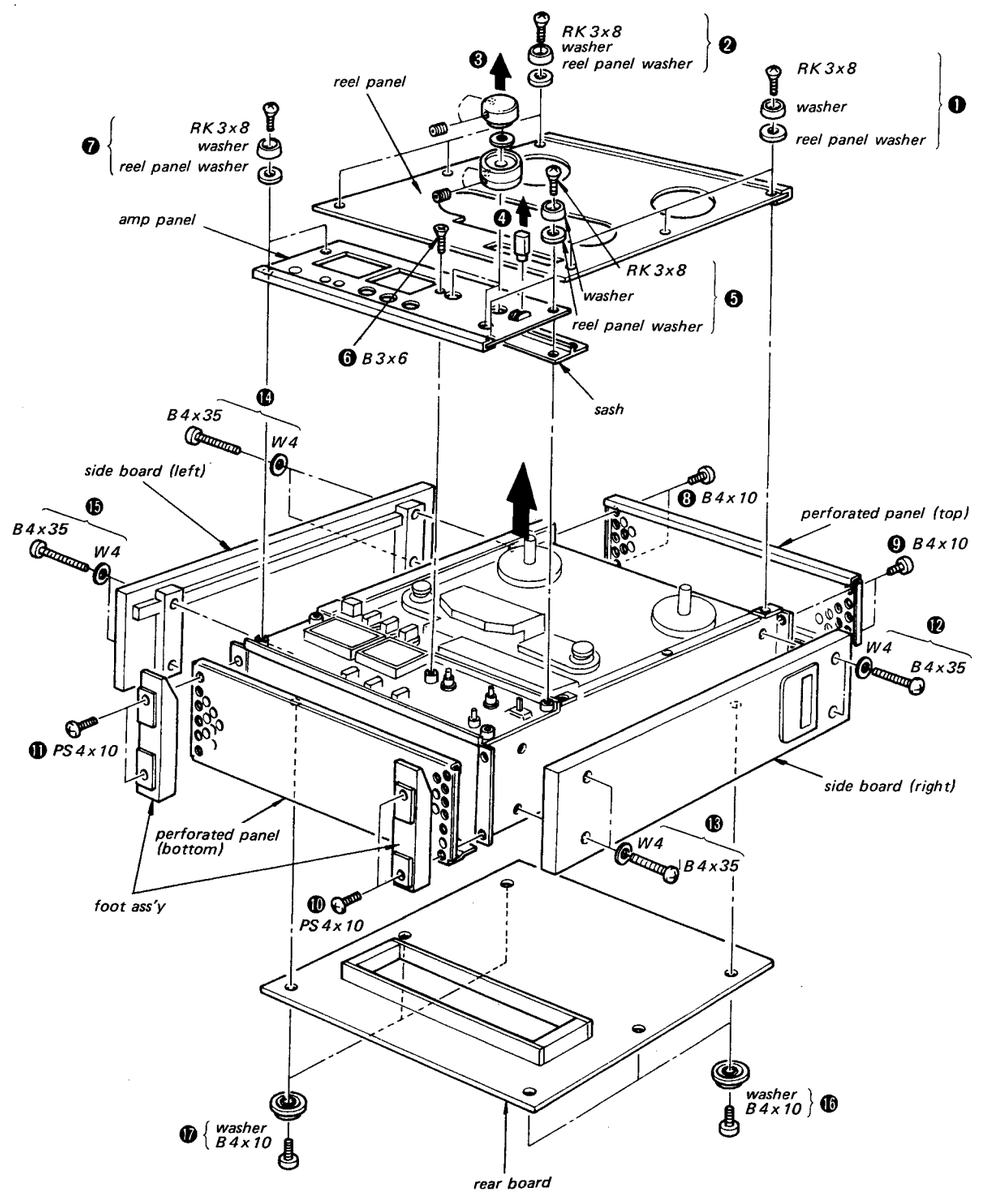
Screwdriver	Adjustment/removal
⬡ 1.27 mm	Tension-arm pin Intermediate pin Switch knob Switch lever
⬡ 1.5 mm	Head azimuth FG-holding boss Control knob Motor pulley
⬡ 2.0 mm	Reel drum

6. Tape BIAS/EQ recommendations
The following list shows the recommended settings, which have been determined through critical listening tests and electrical characteristic measurements on commercially available tapes. The setting can be changed according to the personal preference. For Sony tapes, be sure to use the recommended settings to obtain the optimum tape characteristics.

BIAS \ EQ	NORMAL	SPECIAL	Fe-Cr
LOW	SONY PR	BASF LH, LHS AGFA PE, PEM MEMOREX	SCOTCH #211, #212, #213 AMPEX 406, 407
MED	SCOTCH #218	SONY SLH SCOTCH CLASSIC TDK AUDUA	SONY DUAD SCOTCH #206, #207 MAXELL UD
HIGH			SCOTCH #250

SECTION 2
DISASSEMBLY

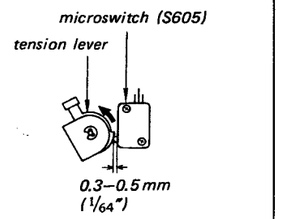
Reel Panel Removal:	❶, ❷	(to Mechanical Adjustment)
Amp Panel Removal:	❸, ❹, ❺, ❻, ❼	(to VU Meter and Variable Resistor Replacement)
Perforated Panel (top) Removal:	❽, ❾	(to Fuse Replacement)
Perforated Panel (bottom) Removal:	❿, ⓫	(to Audio Amp Board Check)
Side Board (right) Removal:	⓬, ⓭	(to Tape Speed and Forward Torque Adjustments)
Side Board (left) Removal:	⓮, ⓯	(to B+ and Supply Reel Back Tension Adjustments)
Rear Board Removal:	⓰, ⓱	(to System Control Board Checking)

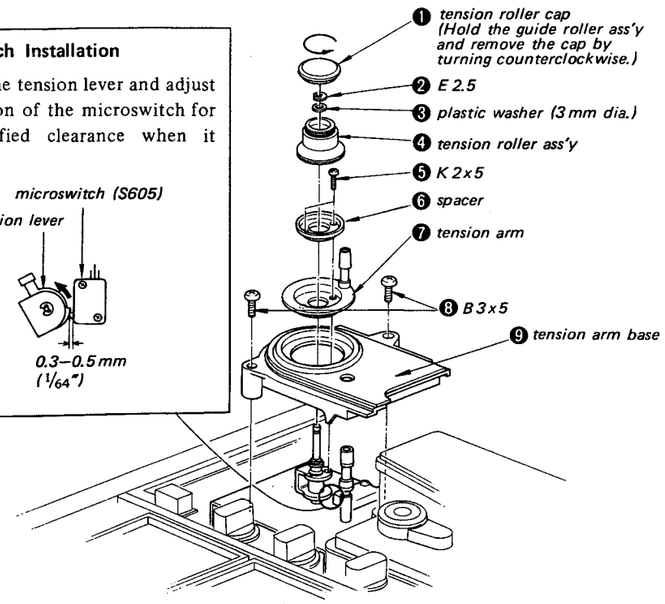


TENSION ARM BASE REMOVAL

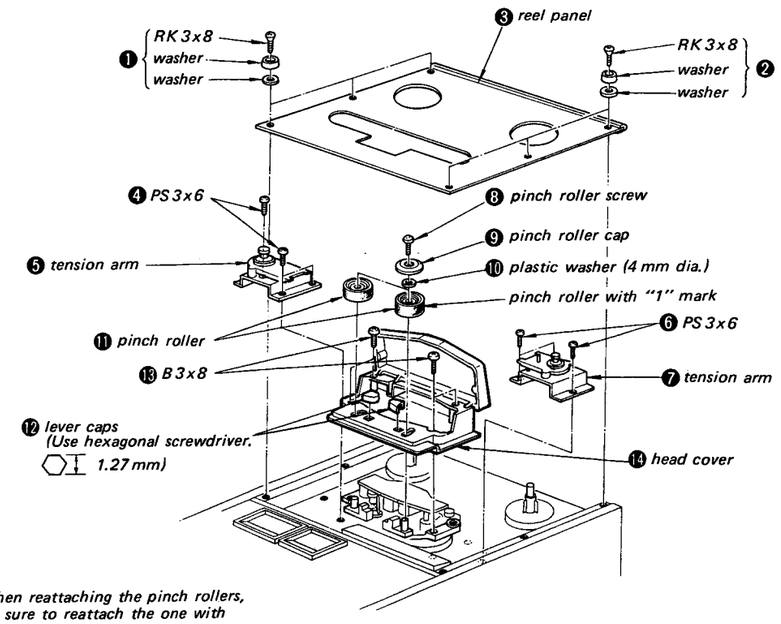
Microswitch Installation

Turn the tension lever and adjust the position of the microswitch for the specified clearance when it switches.



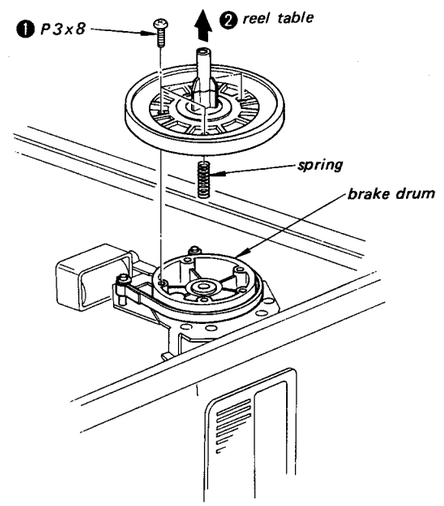

❶ tension roller cap (Hold the guide roller ass'y and remove the cap by turning counterclockwise.)
❷ E 2.5
❸ plastic washer (3 mm dia.)
❹ tension roller ass'y
❺ K 2x5
❻ spacer
❼ tension arm
❽ B 3x5
❾ tension arm base

HEAD COVER REMOVAL



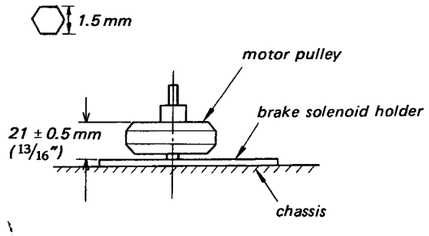
Note: *When reattaching the pinch rollers, be sure to reattach the one with "1" mark at the right side.*

REEL TABLE REMOVAL

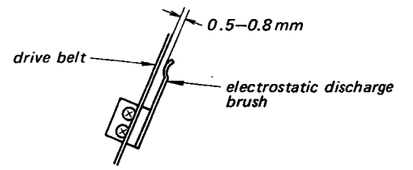


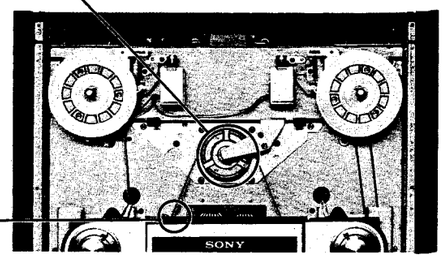
MOTOR PULLEY INSTALLATION

Use a hexagonal screwdriver.



ELECTROSTATIC DISCHARGE BRUSH INSTALLATION





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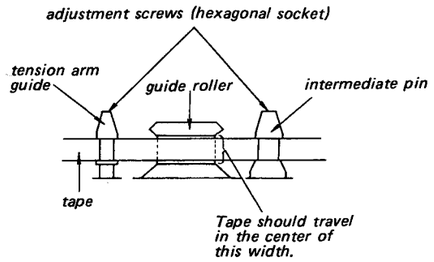
SECTION 3
MECHANICAL ADJUSTMENT

3-1. MECHANICAL ADJUSTMENTS

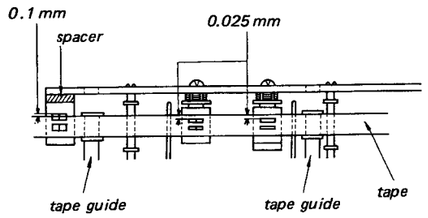
Tape Path Adjustment

1. In playback mode, travel a blank tape SLH-S1, and adjust the positions of the tension-arm guide and intermediate pin.

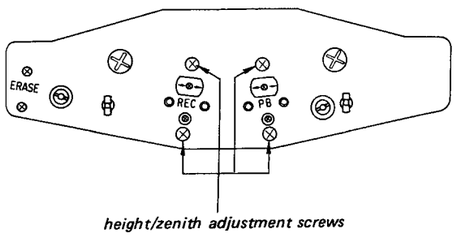


After the adjustment, tighten the adjustment screws.

2. Travel a blank tape SLH7-740 and adjust the position of the tape guides to eliminate tape curls.



3. Travel a blank tape SLH-S1 and adjust the height of each head for the specified clearances. To adjust the erase head height, select appropriate spacer.
To adjust the record and playback heads, turn the height/zenith adjustment screws in the same angle and direction.

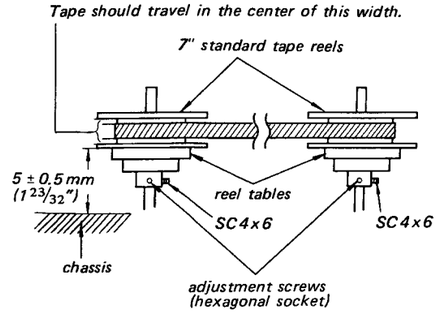


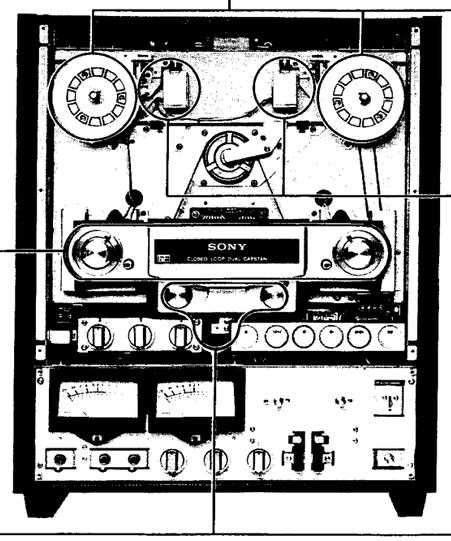
After the adjustment, apply a suitable locking compound to the adjusted screws.

Reel Table Height Adjustment

– playback and rewind modes –

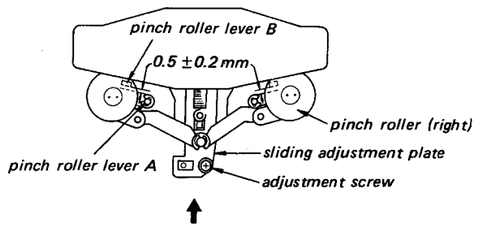
1. Loosen the adjustment screws and adjust the height of the reel tables for the specified height.
2. If the tape touches the reel in playback, fast forward and rewind modes, recheck the tension arms, standard reels and the tape.



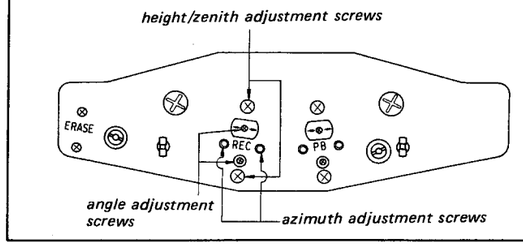


Pinch Roller Lever Position Adjustment

1. Remove the head cover.
2. Reattach both the pinch rollers.
3. Place the set in the playback mode. Check that the solenoid is in on condition (energized).
4. Loosen the adjustment screw and push the slide adjustment plate in the arrowed direction for the specified clearance between the pinch roller levers A and B, and tighten the adjustment screw.
5. After the adjustment, apply a suitable locking compound to the adjustment screw.



Note: *Adjustment screw positions for the 2T PB and 4T PB heads are the same as the 2T REC head.*
Azimuth adjustment screws are so constructed to react each other. Take care in adjusting azimuth adjustment screw.



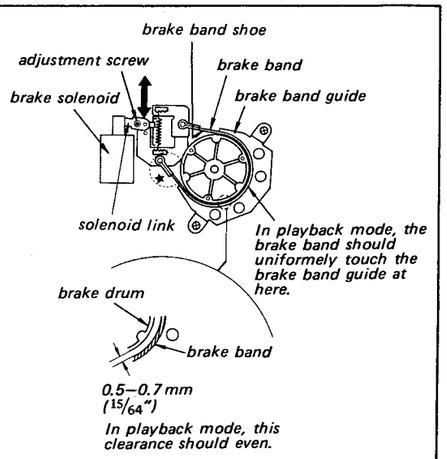
Brake Adjustment (1)

Adjust both the supply- and take-up-side brakes.

1. In stop mode, 0.5–0.7 mm clearance should exist between the brake-band guide and brake band.
2. In playback mode (the brake solenoid should be in ON condition), loosen the adjustment screw and adjust the position of the solenoid link in the arrowed direction so that the brake band and brake-band guide uniformely touch.

Note: If the brake-release stroke is long, the brake band may bend at the position shown with ★. Be sure not to bend the brake band.

3. After the adjustment, apply a suitable locking compound to the adjustment screw.

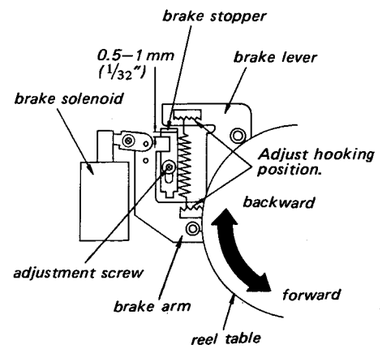


Brake Adjustment (2) and Brake Torque Adjustment

Adjust both the supply- and take-up-side brakes.

1. In stop mode, loosen the adjustment screw and adjust the position of the brake stopper for the specified clearance between the brake stopper and brake lever.
2. After the adjustment, tighten the adjustment screw and apply a suitable locking compound to the screw.
3. Measure both the forward and backward brake torques. Adjust spring-hook position for the specified torques.

backward torque:	1,800–2,500 g·cm (25–34 oz·inch)
forward torque:	600–700 g·cm (8.5–9.5 oz·inch)



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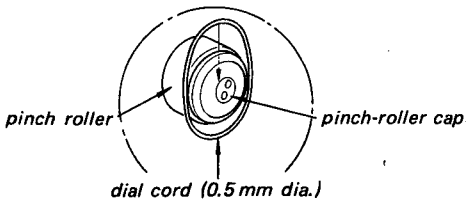
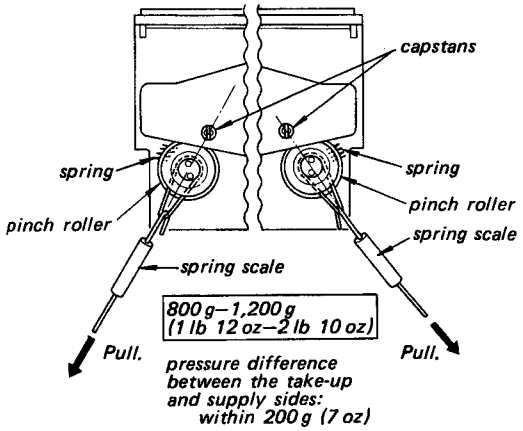
Pinch Roller Pressure Check

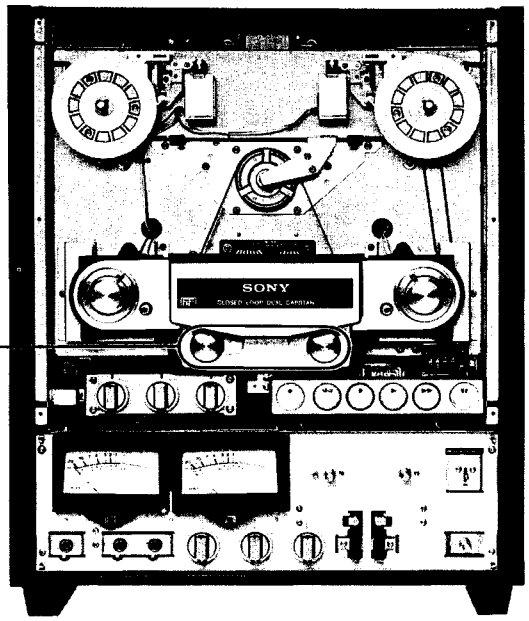
– playback mode –

1. Place the dial-cord ring between the pinch roller and pinch-roller cap.



2. In playback mode, pull the spring scale on the center line made by the centers of the capstan and pinch roller.
3. Slowly return the pinch roller and read the spring scale just when the pinch roller starts to rotate.

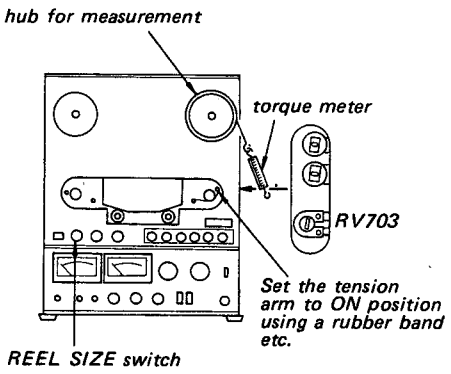




Forward Torque Adjustment

1. Remove the side board (right).
2. Apply the rated ac voltage to the AC IN.
3. Set the TAPE SPEED switch to 19 cm/s and REEL SIZE switch to 10½.
4. In playback mode, adjust RV703 for the specified torques.
5. Set REEL SIZE switch to 7 and check torques.

	REEL SIZE switch	
	10½	7
50 Hz	520–580 g·cm (7.3–8.0 oz·inch)	260–320 g·cm (3.6–4.4 oz·inch)
60 Hz	380–440 g·cm (5.3–6.1 oz·inch)	180–240 g·cm (2.5–3.3 oz·inch)



Supply Reel Back Tension Adjustment

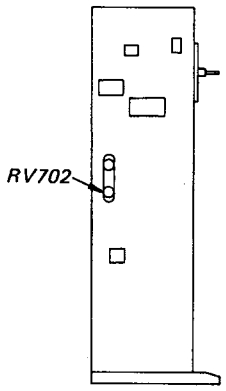
Note: This adjustment requires a ultra-low frequency audio signal generator. If the signal generator is not available, do not attempt this adjustment.

1. Remove the side board (left).
2. Apply the rated ac voltage to AC IN.
3. Set RV702 to the fully-counterclockwise stop.
4. Put a torque meter on the supply reel tape.
5. Unsolder the RED and WHT lead wires from the FG at the system control board.
6. Set the signal generator's frequency to 20.2 Hz and attenuator to -20 dB.
7. Connect the signal generator to the points from where the two lead wires are unsoldered in step 5.
8. Set REEL SIZE switch to 10½ and TAPE SPEED switch to 19 cm.
9. In playback mode, adjust RV702 for specified torque.

	Back tension torque
50 Hz	*150 g·cm (2.1 oz·inch)*
60 Hz	*120 g·cm (1.65 oz·inch)*

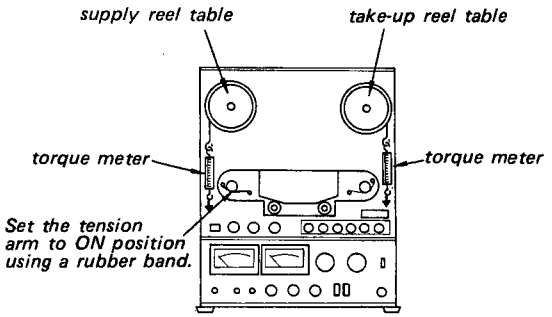
10. Change the audio signal generator's frequency to 7.14 Hz and check the torque meter reeding.

	Torque meter reeding
50 Hz	*280–340 g·cm (3.9–4.7 oz·inch)*
60 Hz	*220–280 g·cm (3.1–3.8 oz·inch)*



Fast Forward and Rewind Back Tesnion Check

1. Apply the rated ac voltage to AC IN.
2. Turn either the left- or right-side tension arm on using a rubber band.
3. Put a torque meter on the supply reel table. In fast forward mode, pull the torque meter in the arrowed direction at a speed of 19–9.5 cm/s and read the fast forward back tension on the torque meter.
4. Put a torque meter on the take-up reel table. In rewind mode, pull the torque meter and read the rewind back tension as in step 3.



	REEL SIZE switch	
	10½	*7*
50 Hz	*110–150 g·cm (1.6–2.0 oz·inch)*	*80–120 g·cm (1.15–1.6 oz·inch)*
60 Hz	*70–110 g·cm (1.0–1.5 oz·inch)*	*50–90 g·cm (0.7–1.2 oz·inch)*

3-2. SYSTEM CONTROL CHECK

System Control Check

Setting:

REEL SIZE switch:	10½
TAPE SPEED switch:	19 cm
TIMER switch:	OFF
MONITOR switch:	TAPE
PB LEVEL control:	center click
REC MONITOR MUTE switch:	OFF
INPUT SELECT switch: (AEP, UK, PX model)	LINE
REC MODE switches:	released positions

Put the 10½-inch blank tapes on the set.

Checking:

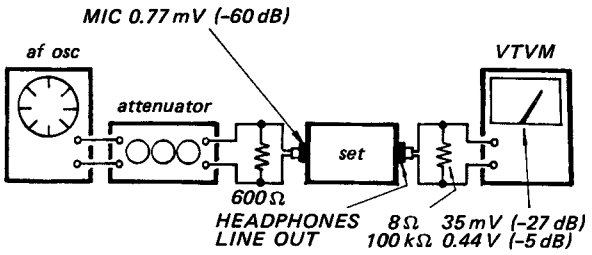
1. Turn POWER switch ON. The VU meter lamps should light up.
2. Depress REC MODE switches. The L-side lamp should light up when the L-side REC MODE switch is depressed, and the R-side lamp should light up when the R-side REC MODE switch is depressed. And the record button lamp should put on and off repeatedly.
3. Depress the pause button. The pause button lamp should light up.
4. Depress the record and forward buttons simultaneously. The record button lamp should turn from flickering to ON. At the same time, the forward button lamp should light up.
5. Press the pause button. The pause button lamp should turn off and the pinch roller should press the capstan and become in forward record mode.
6. Depress the fast forward button. The set should become in the fast forward mode. In this mode, the record button lamp flickers, forward button lamp turns off and the fast forward button lamp turns on.
7. Depress the rewind button. The set should become in the rewind mode. In this mode, the fast forward button lamp should turn off and rewind button lamp turns on.
8. Depress the forward button. The rewind button lamp should turn off and forward button lamp turns on. The tape should once completely stop traveling, and then become in the forward mode.
9. The set should become in the stop mode only when both the tension arm microswitches turn off. The set should not become in the stop mode when one of the tension arm microswitches turns off.
10. Turn TIMER switch ON. Turn POWER switch OFF once, and two to three second later turn POWER switch ON. Now the set should become in the forward record mode automatically.
11. With REC MODE switches released (i.e., in the playback positions), perform the same procedure as shown in step 10. The set should become in forward mode automatically.
12. Place the set in the forward record and simultaneous monitoring mode. Turn REC MONITOR MUTE switch on the rear panel ON. Now the signal should not come out from LINE OUT jacks.
    Rewind the recorded portion of the tape and place the set in the forward mode. Now the signal should come out from LINE OUT jacks.
    Turn REC MONITOR MUTE switch OFF.
13. Depress the forward and pause buttons. Move the recorded portion of the tape back and forth. Sound signal should come out from LINE OUT jacks.

3-3. ELECTRICAL ADJUSTMENTS

Note: The adjustments should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

Standard Record:

Set the REC LEVEL control for the specified output level.



Control and Switch Settings:

Unless otherwise specified, set the controls and switches as follows.

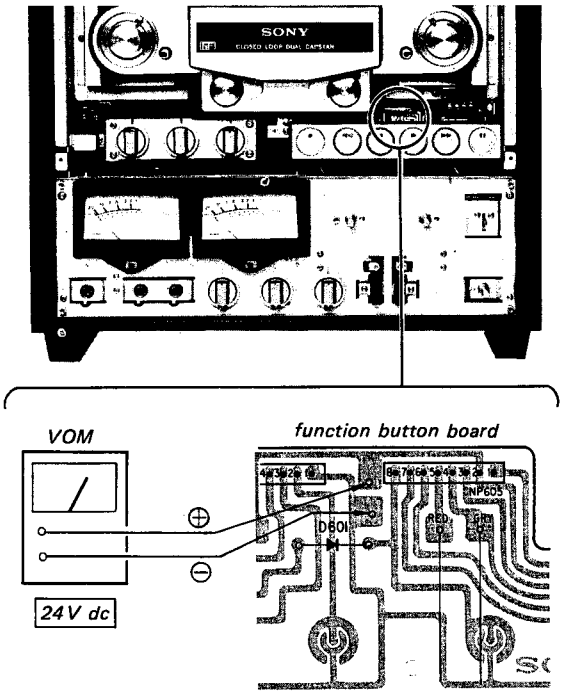
Controls	In playback	In record
MIC REC VOL		The position to produce the rated LINE OUT level with rated MIC input level.
LINE REC VOL		The position to produce the rated LINE OUT level with rated LINE IN level.
PB VOL	center click	center click

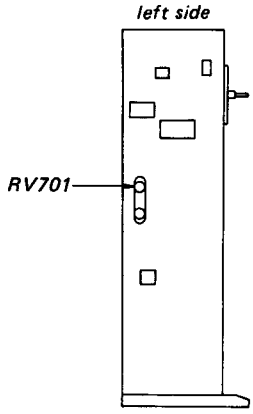
Switch	In playback	In record
POWER	ON	ON
REEL SIZE	7	7
TAPE SPEED	19	19
TIMER	OFF	OFF
MIC ATT		0
TAPE SELECT (BIAS)		MED
TAPE SELECT (EQ)		SPECIAL
REC MODE	PB	REC
MONITOR	TAPE	SOURCE (TAPE)
REC MONITOR MUTE	OFF	OFF
INPUT SELECT (AEP, UK, PX model)	LINE	LINE

B+ Voltage Adjustment

Adjustment Location:

– function button board –

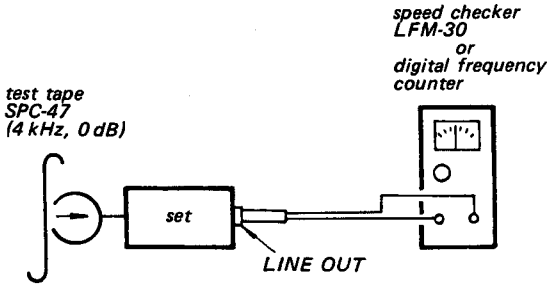




Tape Speed Adjustment

Procedure:

Mode: playback



Use a non-metallic screwdriver. Adjust RV901 (19 cm/s) and RV902 (9.5 cm/s) for 0% checker or 4,000 Hz (19 cm/s) and 2,000 Hz (9.5 cm/s) counter readings.

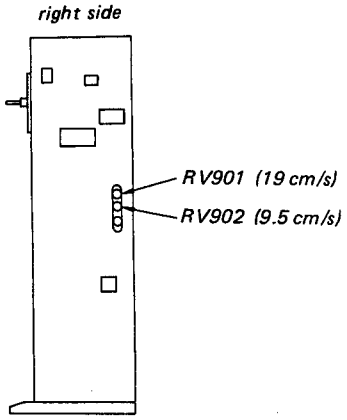
Specification:

Speed checker	Frequency counter
±0.75%	3,970–4,030 Hz (19 cm/s) 1,985–2,015 Hz (9.5 cm/s)

Frequency difference between beginning and end of tape:

19 cm/s: within 0.5% or 20 Hz
9.5 cm/s: within 0.5% or 10 Hz

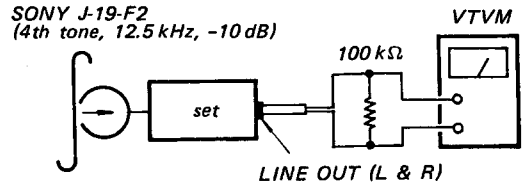
Adjustment Location:



Playback Head Angle Adjustment

Procedure:

Mode: playback

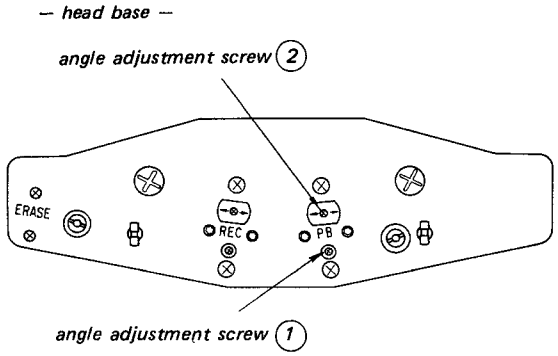


Loosen the adjustment screws (1) and (2) and adjust the position of the PB head by moving the screw (2) in the arrowed direction for the highest VTVM reading.

After the adjustment, apply a locking compound to the screws.

Note: Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

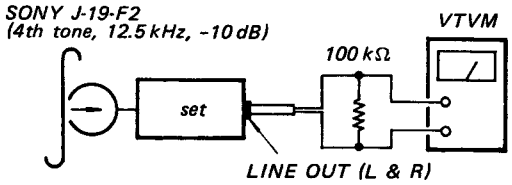
Adjustment Location:



Playback Head Azimuth and Phase Adjustment

Procedure:

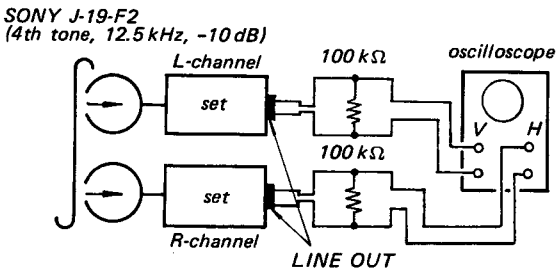
1. Mode: playback



Turn the adjustment screws of the PB head for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screw to the point where both L and R outputs are same and within 1 dB from the peaks.

Note: The two adjustment screws are so constructed to react each other. When one side screw is loosened, tighten another screw in the same angle.

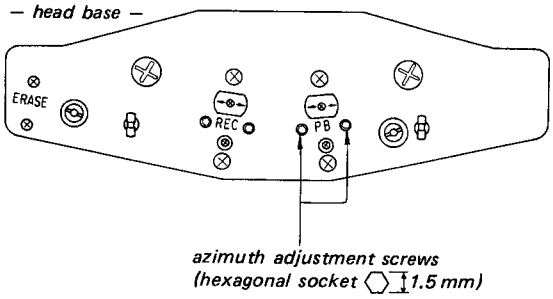
2. Mode: playback



Adjust	On the oscilloscope			
azimuth adjustment screw	in-phase	30°	90°	more than 90°
	good			wrong

Note: Difference between the highest levels of L and R and the finally adjusted level should be within 1 dB.

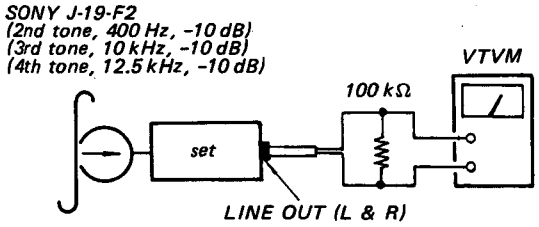
Adjustment Location:



Playback Frequency Response Adjustment

Procedure:

Mode: playback
PLAYBACK HEAD switch: 2 TRACK

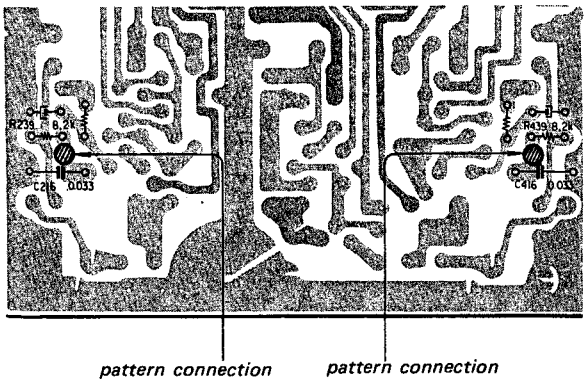


Adjust the pattern connections to obtain the specified values.

Playback	Level difference from 400 Hz
10 kHz 12.5 kHz	within ± 2 dB

Adjustment Location:

– audio amp board –

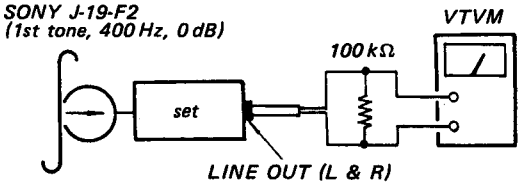


Note: After this adjustment perform the playback level adjustment.

Playback Level Adjustment

Procedure:

Mode: playback

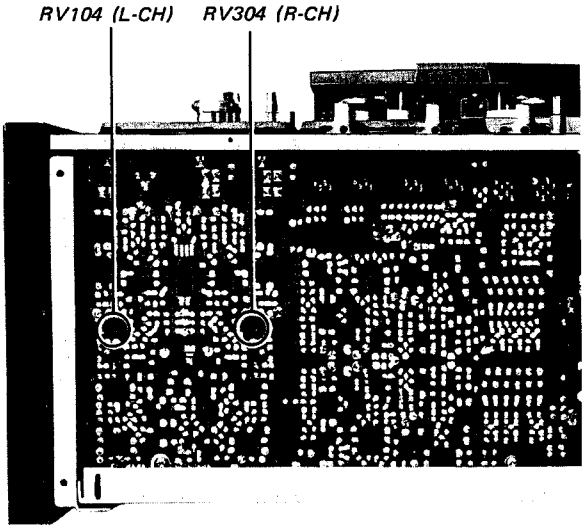


Adjust	VTVM reading
RV104 (L-CH) RV304 (R-CH)	0.44 V (-5 dB) allowance: ± 1 dB (0.39–0.49 V)

Note: Level difference between L and R channels should be within 1 dB.

Adjustment Location:

– audio amp board –



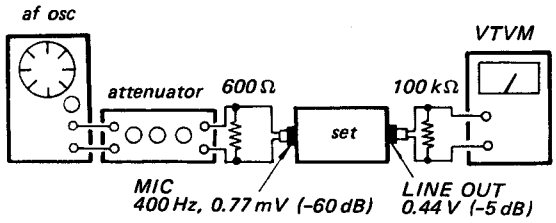
VU Meter Calibration

Setting:

MONITOR switch: SOURCE

Procedure:

1. Mode: record

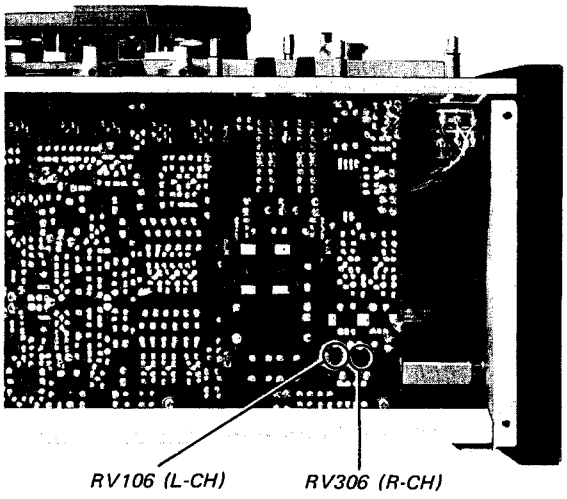


2.

Adjust	VU meter indication
RV106 (L-CH) RV306 (R-CH)	"0"

Adjustment Location:

– audio amp board –



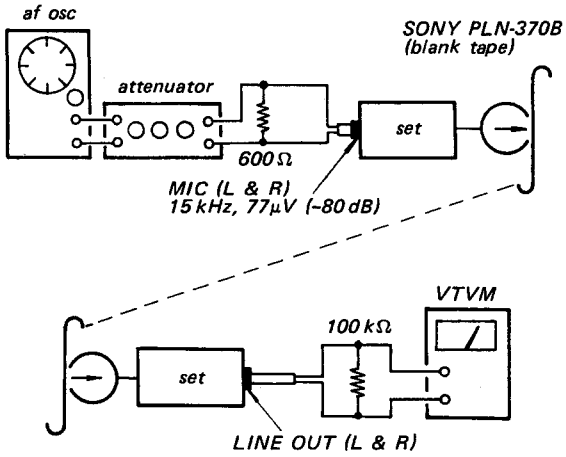
Record Head Angle Adjustment

Setting:

MONITOR switch: TAPE

Procedure:

Mode: record and simultaneous playback
PLAYBACK HEAD switch: 2T REC



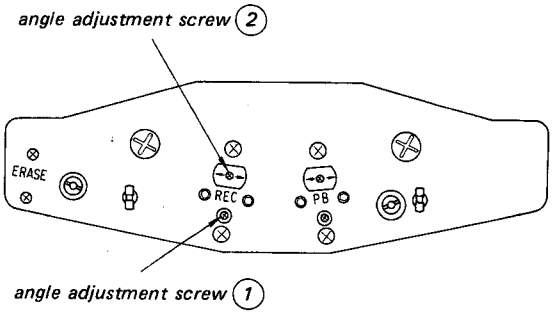
Loosen the adjustment screws ① and ②. Correctly position the record head by moving the adjustment screw ② in the arrowed directions for the highest VTVM reading.

Note: Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

After the adjustment, apply a suitable locking compound to the screws.

Adjustment Location:

– head base –



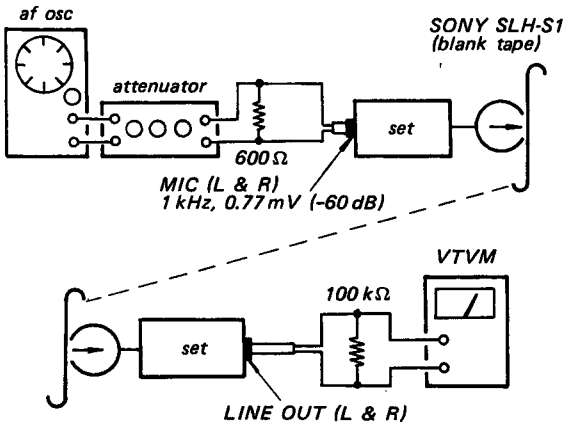
Record Head Height and Zenith Adjustment

Setting:

MONITOR switch: TAPE

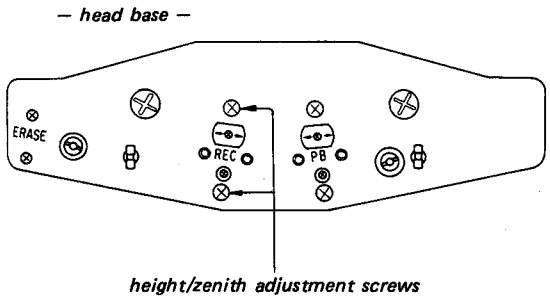
Procedure:

Mode: record and simultaneous playback
PLAYBACK HEAD switch: 2 TRACK



Turn the height and zenith adjustment screws for the highest VTVM reading.

Adjustment Location:



Record Head Azimuth and Phase Adjustments

Setting:

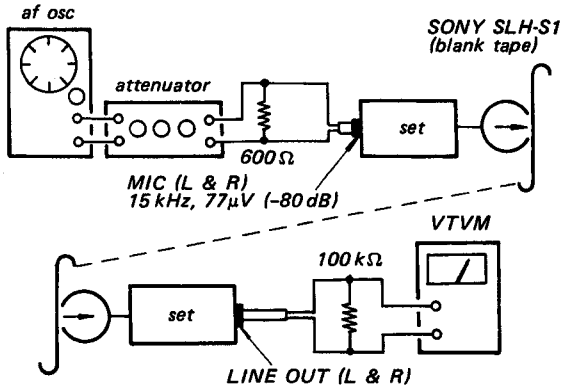
MONITOR switch: TAPE

Procedure:

When a simplified test is made, follow Procedure 1. When an oscilloscope is available, employ Procedure 2.

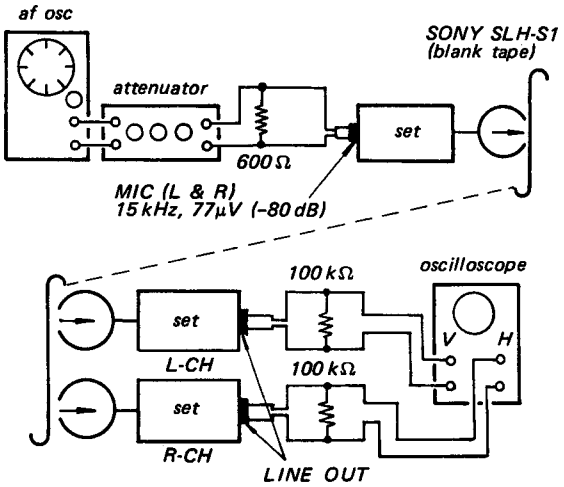
Note: The two adjustment screws are so constructed to react each other. When one side screw is loosened, tighten another screw in the same angle.

1. Mode: record and simultaneous playback



Turn the adjustment screws for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screws to the point where both L and R outputs are same and within 1 dB from the peaks.

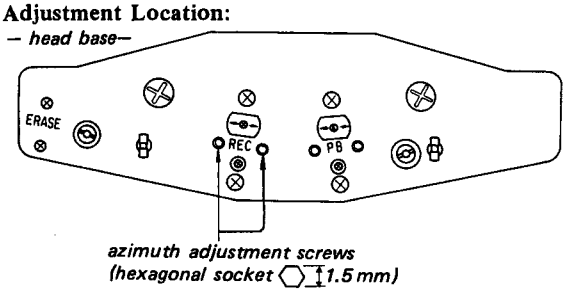
2. Mode: record and simultaneous playback



Adjust	On the oscilloscope			
azimuth adjustment screw	in-phase	30°	90°	more than 90°
	good			wrong

Note: Difference between the highest levels of L and R and the finally adjusted level should be within 1 dB.

Adjustment Location:



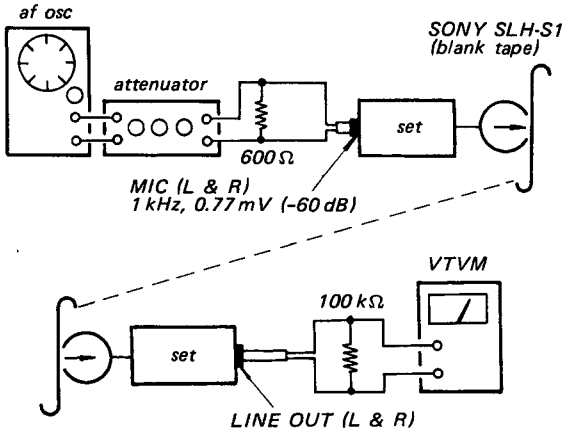
Record Bias Adjustment

Setting:

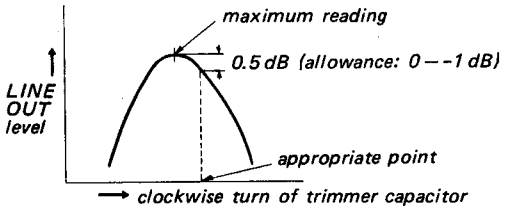
MONITOR switch: TAPE

Procedure:

Mode: record and simultaneous playback

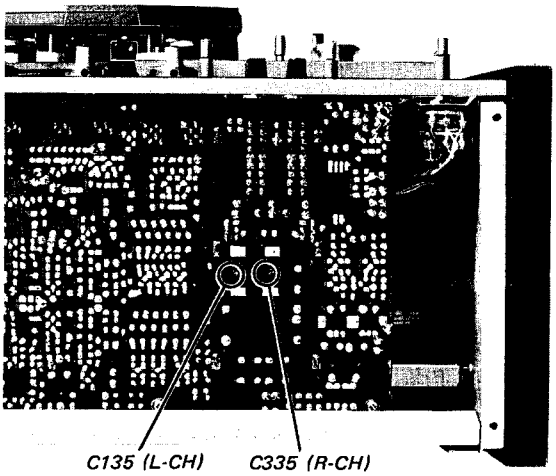


As trimmer capacitor C135 (L-CH) or C335 (R-CH) is slowly turned clockwise, VTVM reading will go up to a maximum and then start falling again. Adjust the capacitor until VTVM reads 0.5 dB below and beyond the maximum reading.



Adjustment Location:

– audio amp board –



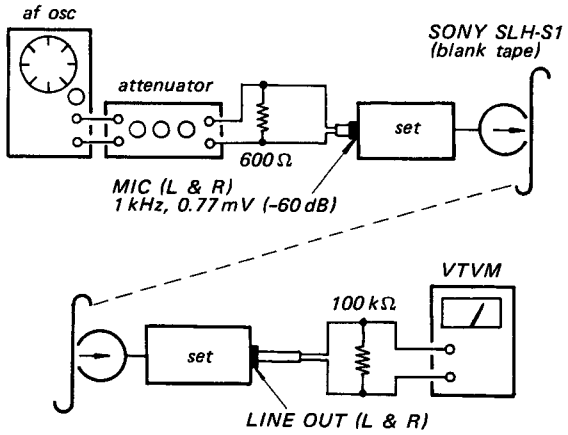
Record Level Adjustment

Setting:

MONITOR switch: TAPE

Procedure:

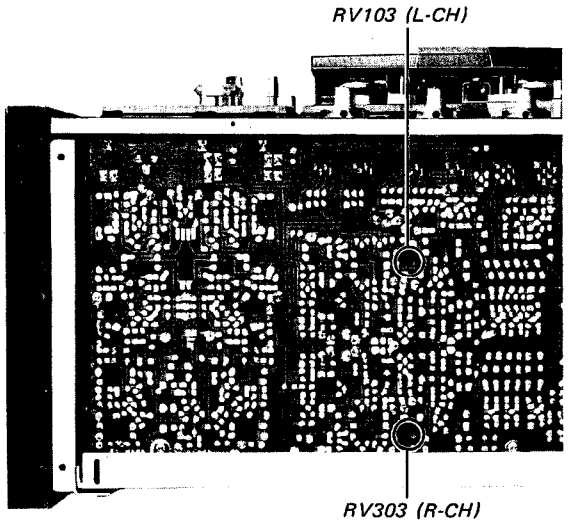
Mode: record and simultaneous playback



Adjust	VTVM reading
RV103 (L-CH) RV303 (R-CH)	0.44 V (–5 dB)

Adjustment Location:

– audio amp board –



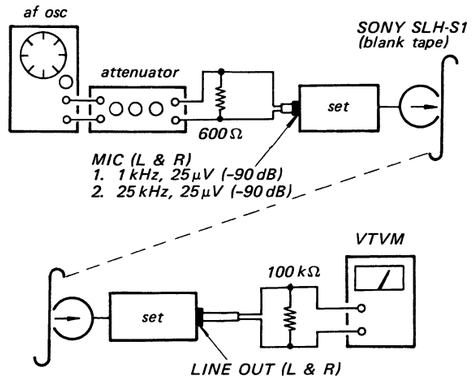
Record Equalizer Adjustment

Setting:

MONITOR switch: TAPE

Procedure:

Mode: record and simultaneous playback

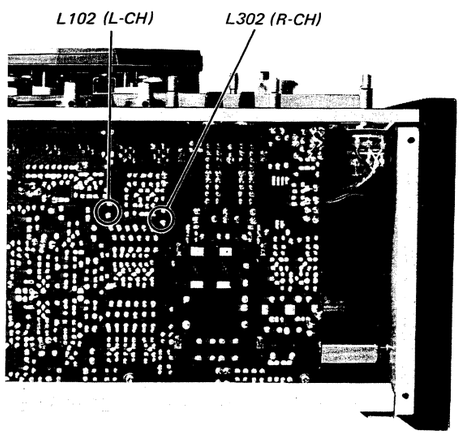


	Adjust	Remarks
1 kHz 25 kHz	L102 (L-CH) and L302 (R-CH)	Same LINE OUT level at both frequencies.

Level-difference allowance of 25 kHz signal from 1 kHz: 0 dB – -3 dB

Adjustment Location:

– audio amp board –



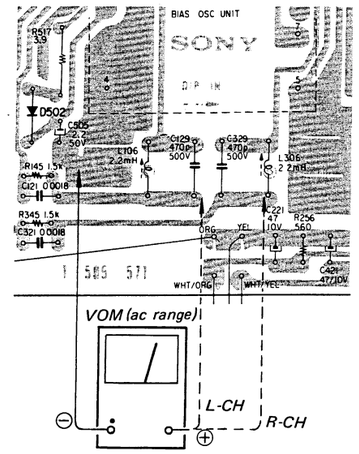
Record Bias Trap Adjustment

Setting:

MIC REC control: 0
LINE REC control: 0

Procedure:

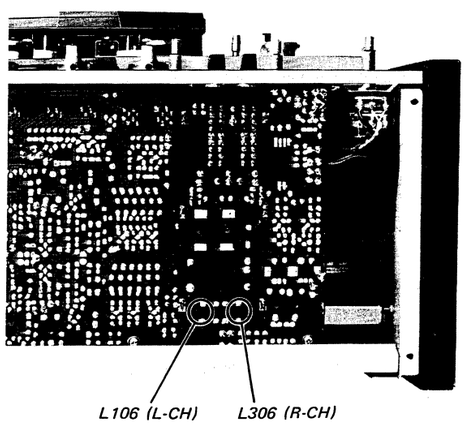
Mode: record



Adjust	VTVM reading
L106 (L-CH) L306 (R-CH)	minimum

Adjustment Location:

– audio amp board –



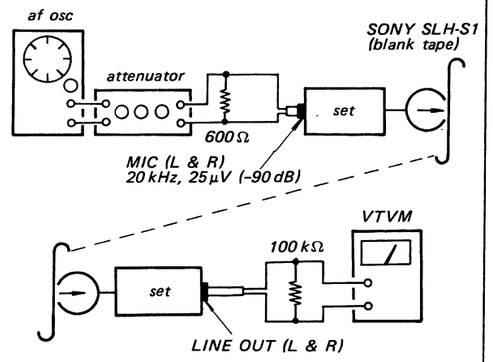
Dummy Coil Adjustment

Setting:

MONITOR switch: TAPE

Procedure:

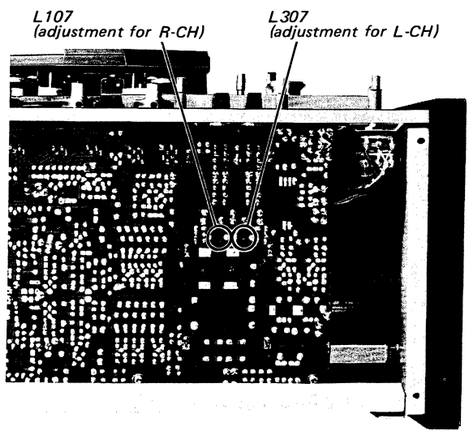
Mode: record and simultaneous playback



Step	Mode	Adjust	Remarks
1	stereo record and simultaneous playback	–	Record VTVM reading.
2	L channel record and simultaneous playback	L307	same VTVM reading as in step 1.
3	R channel record and simultaneous playback	L107	

Adjustment Location:

– audio amp board –



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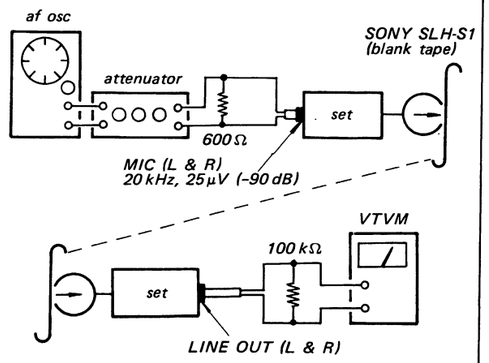
Dummy Coil Adjustment

Setting:

MONITOR switch: TAPE

Procedure:

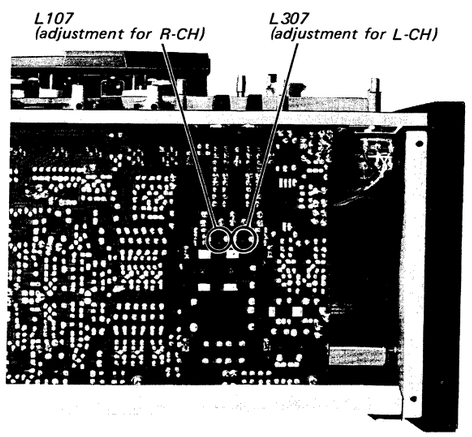
Mode: record and simultaneous playback



Step	Mode	Adjust	Remarks
1	stereo record and simultaneous playback	–	Record VTVM reading.
2	L channel record and simultaneous playback	L307	same VTVM reading as in step 1.
3	R channel record and simultaneous playback	L107	

Adjustment Location:

– audio amp board –



MEMO

SONY-00527 / DRUCK 8

SECTION 4
DIAGRAMS

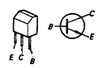
4-1. MOUNTING DIAGRAM — Amplifier Section (US, Canadian model) —

— Conductor Side —

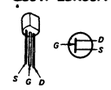
Replacement Semiconductors
For replacement, use semiconductors except in ( ).

Q101, 103, 104
Q115, 121, 122
Q301, 303, 304
Q315, 321, 322 : 2SC1345-E

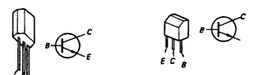
Q102, 108
Q302, 308 : 2SC1345-E (2SC458D)



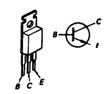
Q501: 2SK30A



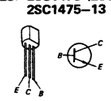
Q105, 109
Q123, 124
Q305, 309
Q323, 324 : 2SC634A (2SC458D)



Q504: 2SC1173

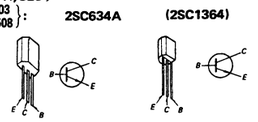


Q125, 325: 2SC1475 (2SC1318)
Q505: 2SC1475–13 (2SC1475)



Q106
Q110–114, 120
Q306
Q310–314, 320 : 2SC634A (2SC1363)

Q502, 503
Q506–508 : 2SC634A (2SC1364)

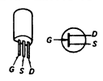


(After replacing Q505, perform the record bias adjustment on page 22.)

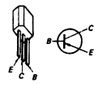
D101, 102
D301, 302
D502–504 : 1S1555 (1T40)

D103
D303 : 1T22A (1T22)

Q116, 316: 2SK43-13 (2SK43)



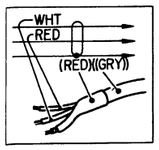
Q117, 317: 2SA705



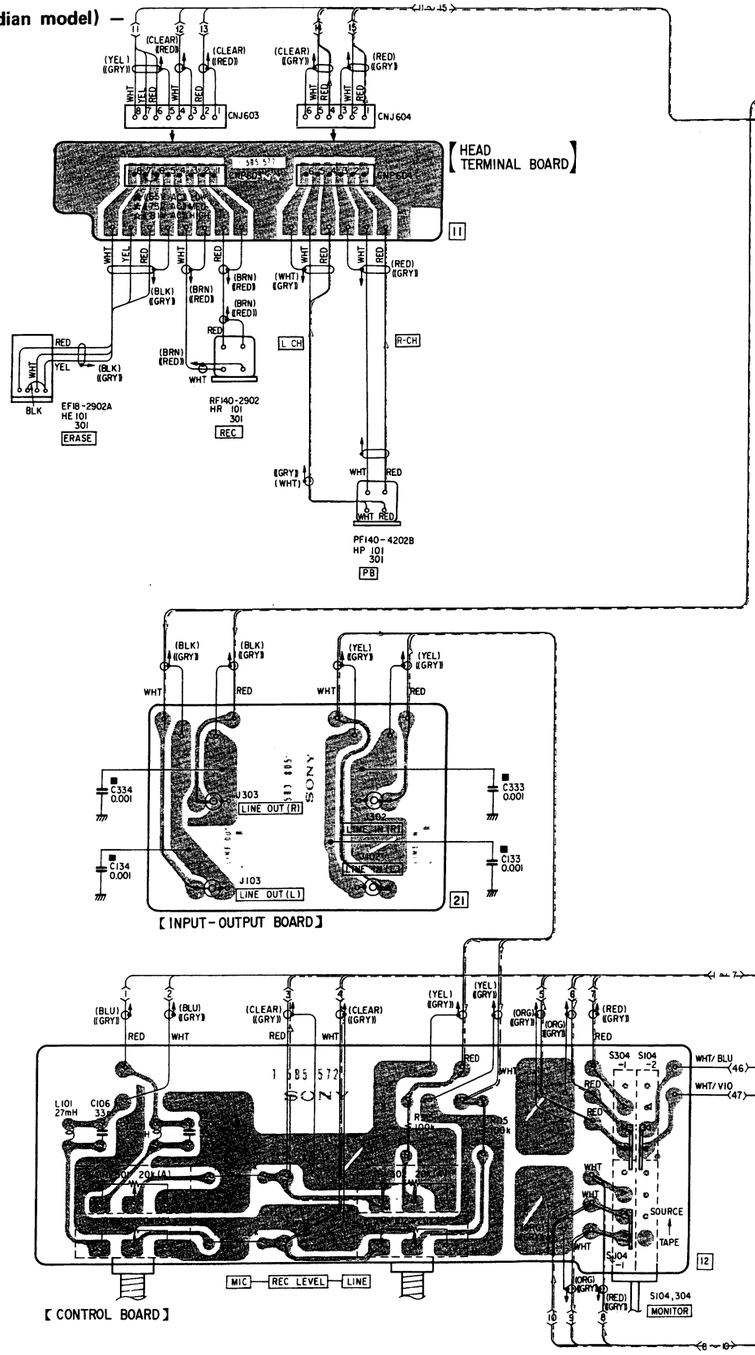
D501: EQB01-11Z (EQA01-11S)

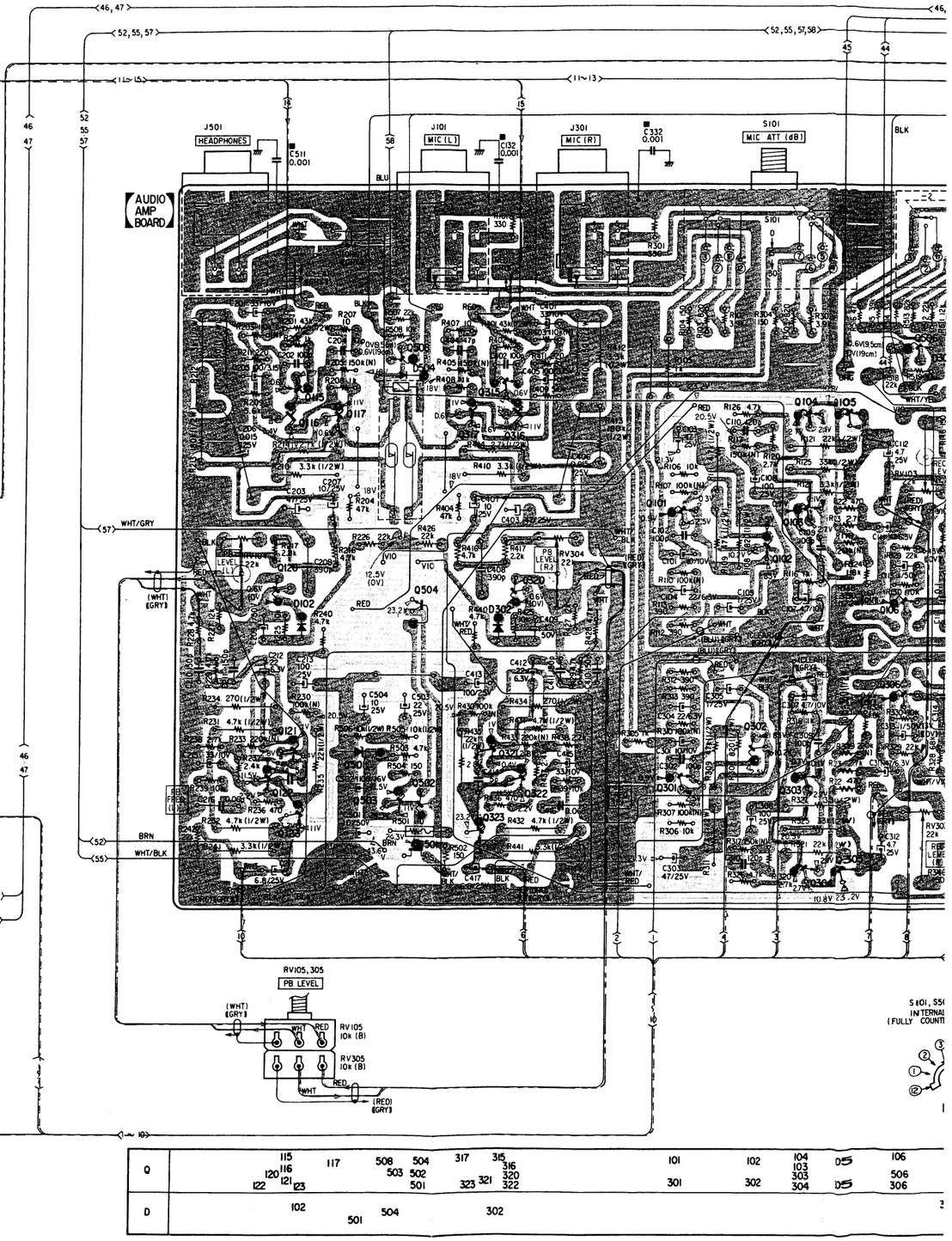
Note:

- ■: part mounted on the conductor side.
- B+ pattern.
- ⇨⇨⇨ : signal path (both channel)
  ⇨⇨⇨: L-CH
  ⇨⇨⇨: R-CH
- DC resistance measurements are with coils connected on the circuit board, and are approximate.
- Color code of sleeving over the end of the jacket.

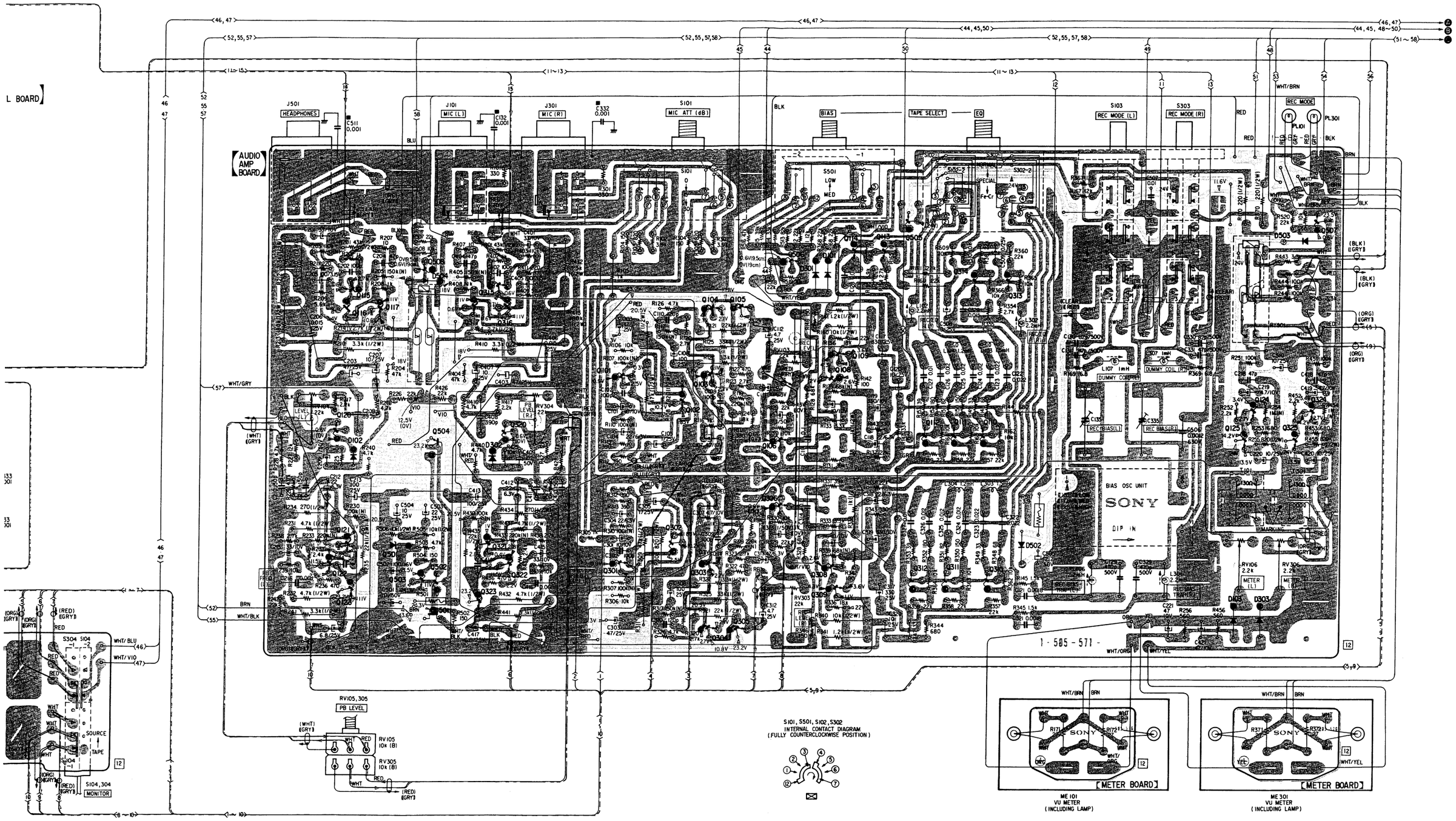


- Readings are taken under no signal conditions and in stop mode with a VOM (20 kΩ/V).
  (( )): record mode.
  ( ): forward mode.
  ⟨ ⟩: S607 is ON.
- AC voltage readings indicated by ⋆ in the bias oscillator circuit are taken with a VTVM.



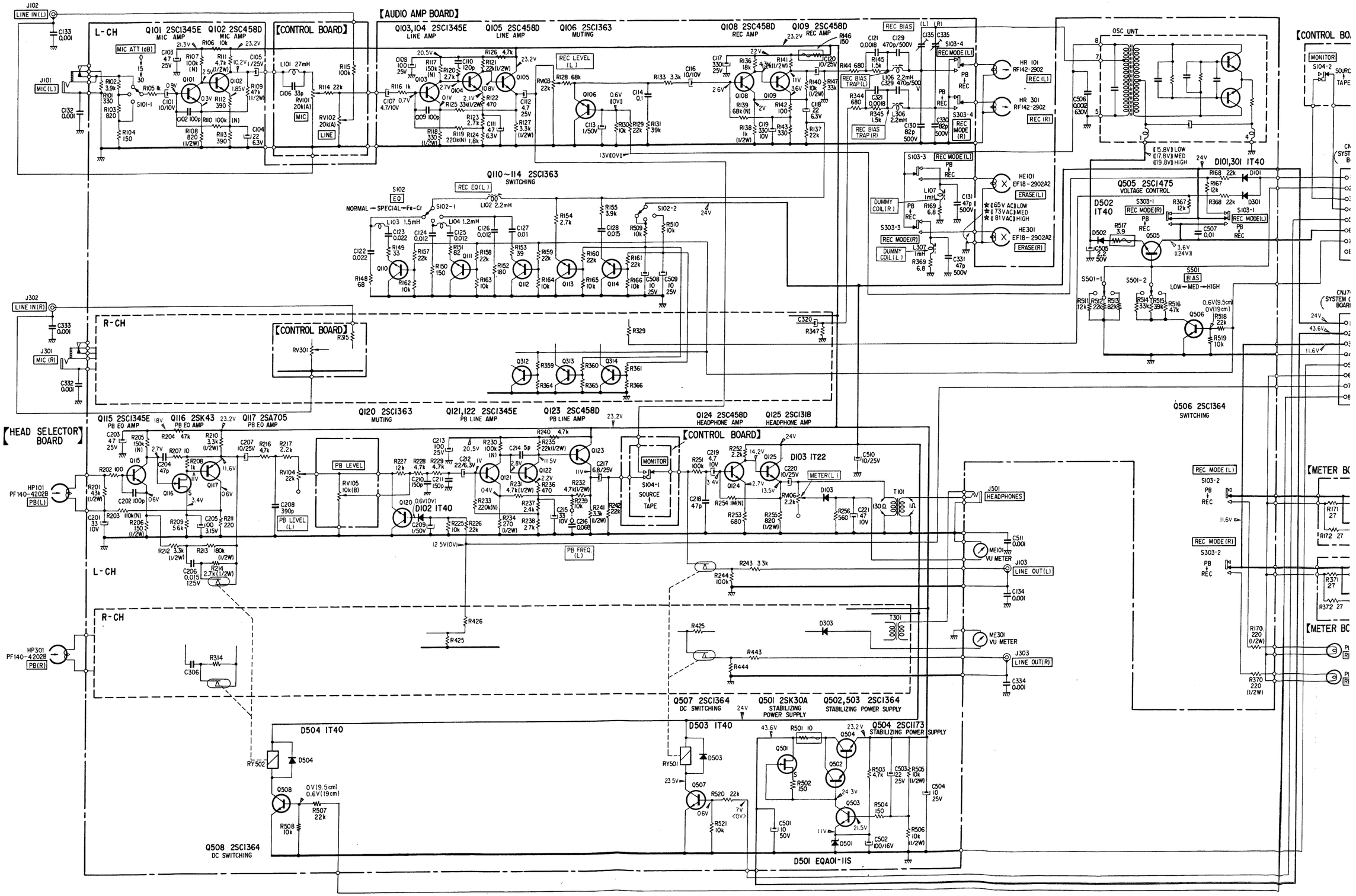


| | | |

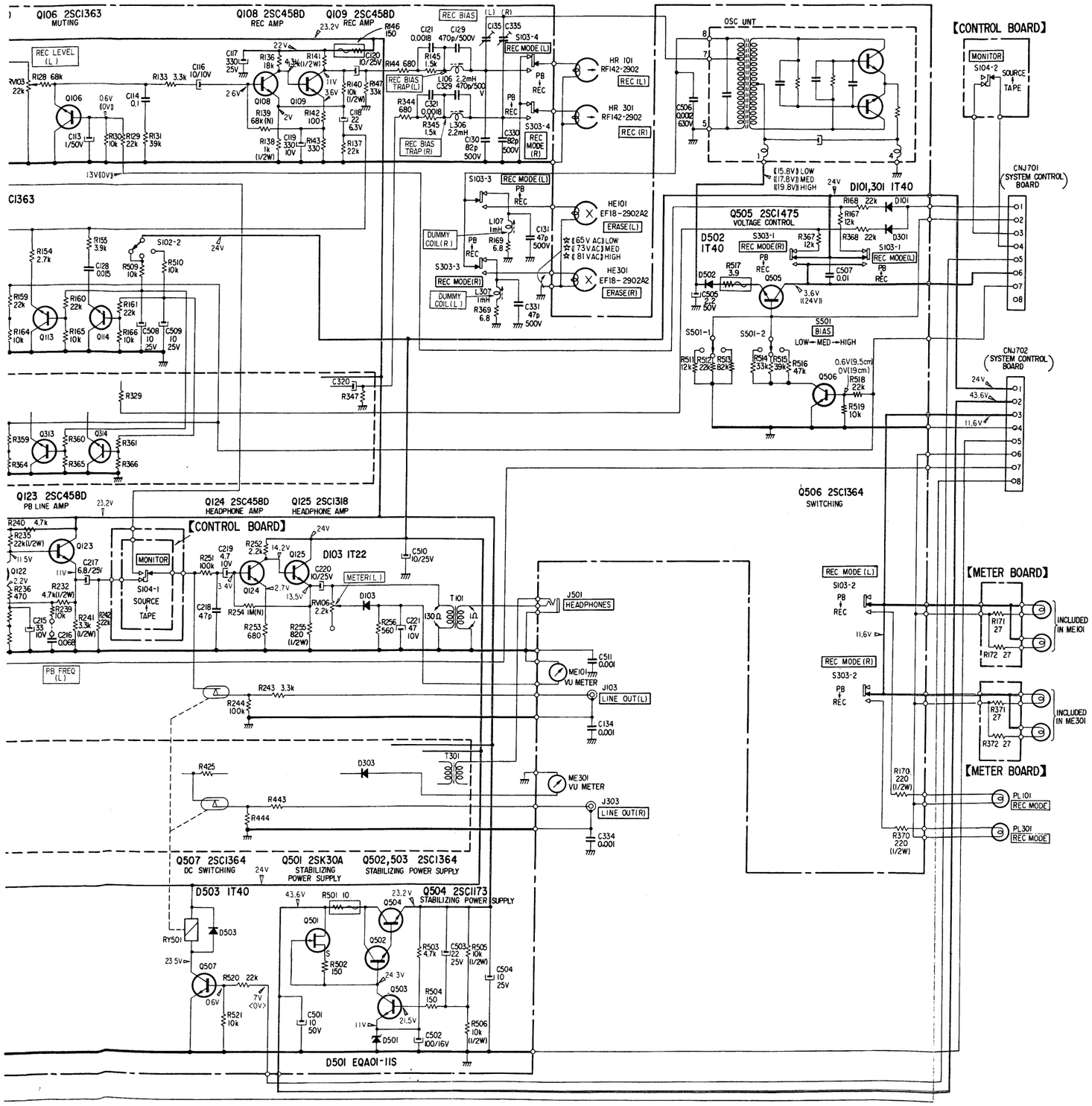

AUDIO AMP BOARD
J501 HEADPHONES
J101 MIC (L)
J301 MIC (R)
S101 MIC ATT (dB)
BIAS
TAPE SELECT
EQ
S103 REC MODE (L)
S303 REC MODE (R)
REC MODE
PL101
PL301
S501 LOW MED
SPECIAL Fe-Cr
BIAS OSC UNIT
SONY
DIP IN
MARKING
RV105 10k (B) PB LEVEL
RV305 10k (B) PB LEVEL
S101, S501, S102, S302 INTERNAL CONTACT DIAGRAM (FULLY COUNTERCLOCKWISE POSITION)
S304 S104 SOURCE TAPE
S104, 304 MONITOR
ME101 VU METER (INCLUDING LAMP)
ME301 VU METER (INCLUDING LAMP)
[METER BOARD]
1-585-571-

| | | |

4-2. SCHEMATIC DIAGRAM — Amplifier Section (US, Canadian model) —



TC-765



Note:

- Components for right channel have the same values as for left channel. Reference numbers are coded from 301 (REC AMP or PB AMP) or 401 (PB AMP).
- All capacitors are in μF unless otherwise noted. pF = μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000 kΩ
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⏦ : fusible resistor.
- (N) : low-noise capacitor and resistor.
- ▭ : B+ bus.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ⏚ : chassis ground.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions and in stop mode with a VOM (20 kΩ/V).
  (( )) : record mode.
  ( ) : forward mode.
  〈 〉 : S607 is ON.
- AC voltage readings indicated by ☆ in the bias oscillator circuit are taken with a VTVM.
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S101,301	MIC ATT	0 (dB)
S102,302	EQ	NORMAL
S103,303	REC MODE	PB
S104,304	MONITOR	TAPE
S501	BIAS	MED

SONY-00527 / DRUCK 12

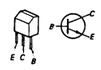
4-3. MOUNTING DIAGRAM — Amplifier Section (UK, AEP, PX model) —

— Conductor Side —

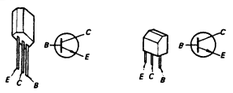
Replacement Semiconductors
For replacement, use semiconductor except in ( ).

Q101, 103, 104
Q115, 121, 122
Q126
Q301, 303, 304
Q315, 321, 322
Q326
: 2SC1345-E

Q102, 108
Q302, 308
: 2SC1345-E (2SC458D)

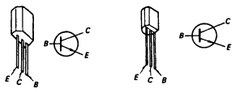


Q105, 109
Q123, 124
Q305, 309
Q323, 324
: 2SC634A (2SC458D)

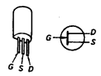


Q106
Q110—114, 120
Q306
Q310—314, 320
: 2SC634A (2SC1363)

Q502, 503
Q506—509
: 2SC634A (2SC1364)

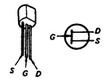


Q116, 316: 2SK43-13 (2SK43)

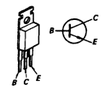


Q117, 317: 2SA705
Q127, 327: 2SA678 (2SA677)

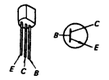
Q501: 2SK30A



Q504: 2SC1173



Q125, 325: 2SC1475 (2SC1318)
Q505: 2SC1475-13 (2SC1475)



(After replacing Q505, perform the record bias adjustment on page 22.)

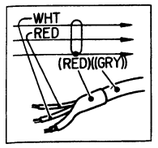
D101, 102
D301, 302
Q502—505
: 1S1555 (1T40)

D103
D303
: 1T22A (1T22)

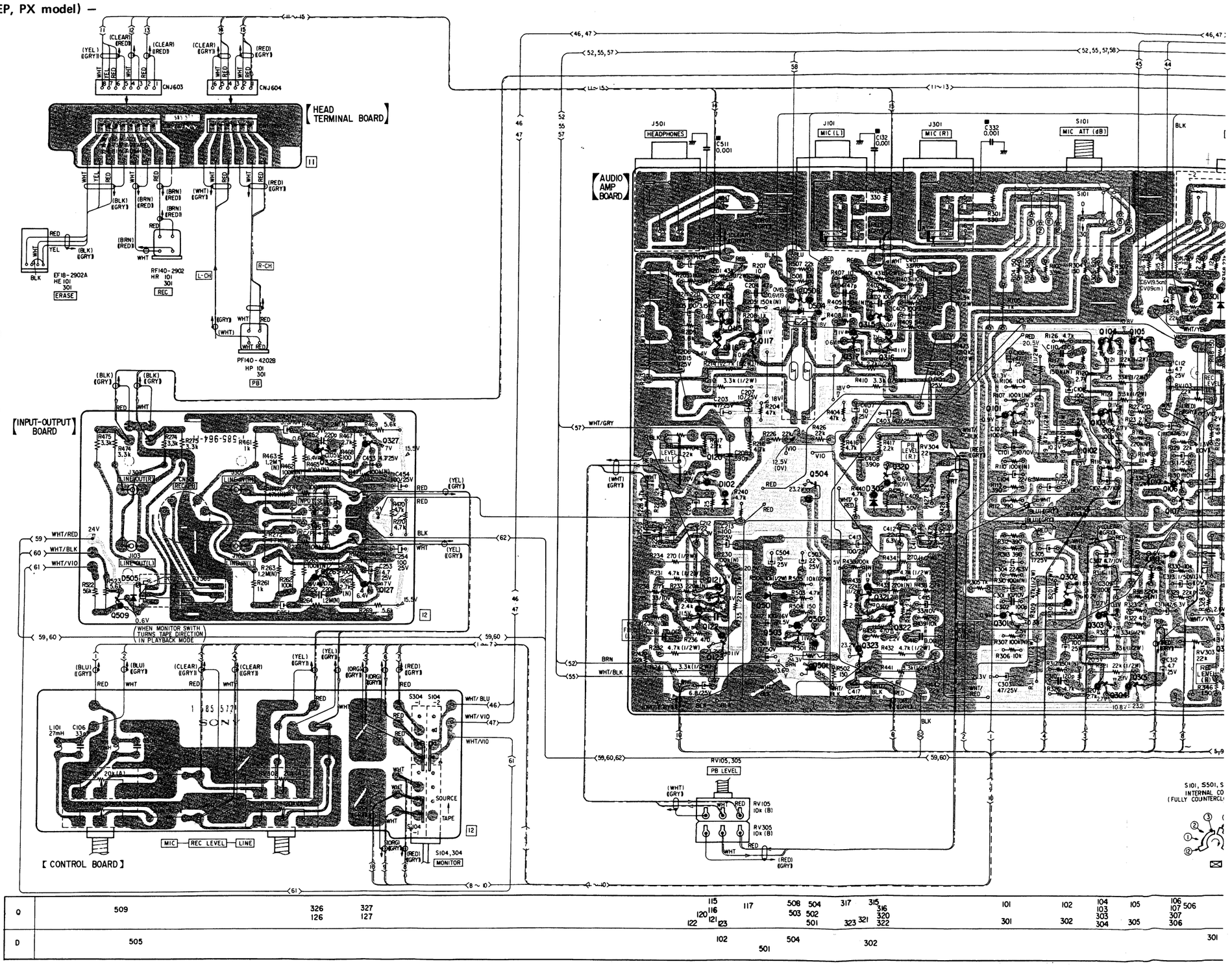
D501: EQB01-11Z (EQA01-11S)

Note:

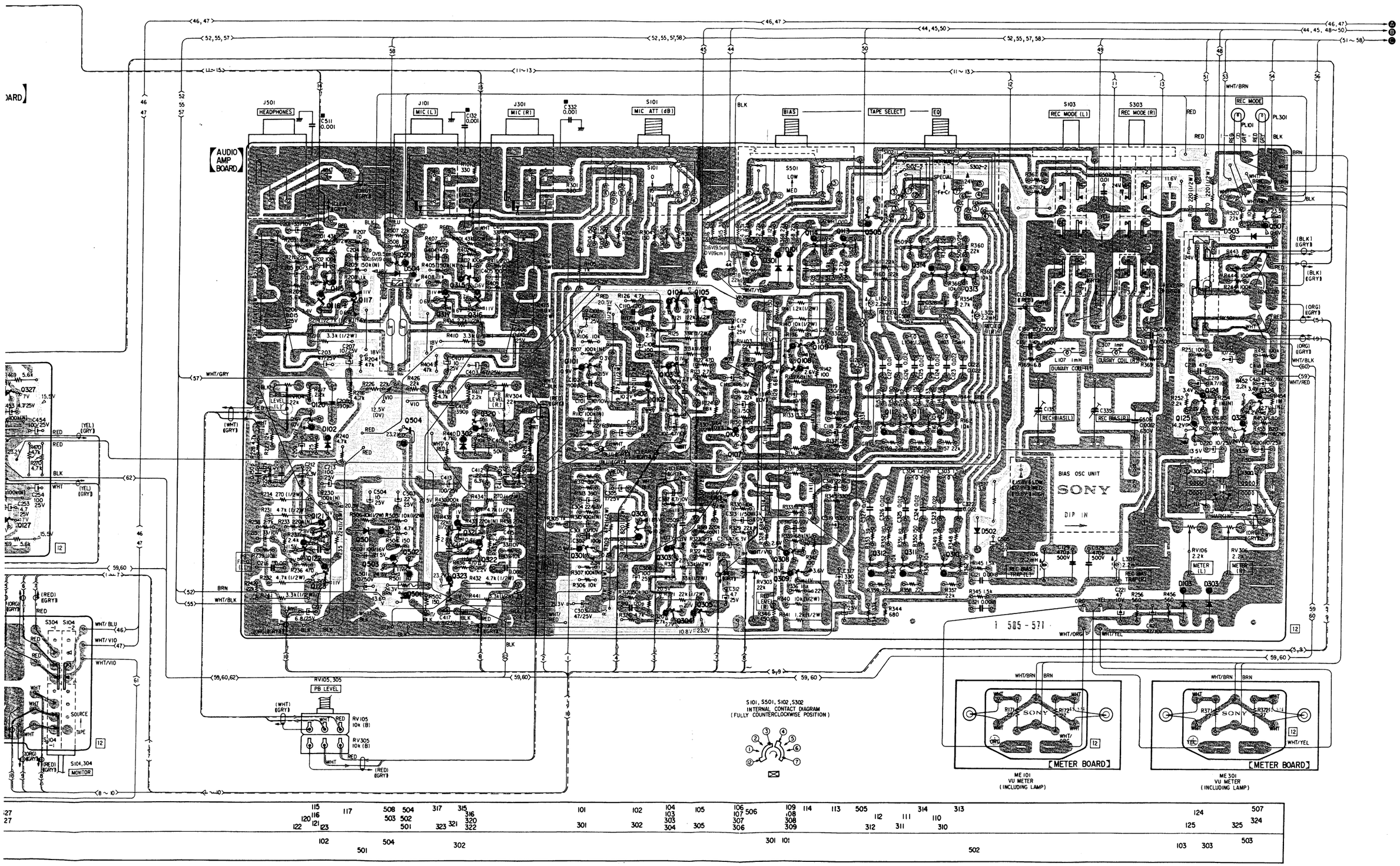
- ■: part mounted on the conductor side.
- ▨: B+ pattern.
- ▭▭▭⇨: signal path (both channel)
  ▭▭▭⇨: L-CH
  ▭▭▭⇨: R-CH
- DC resistance measurements are with coils connected on the circuit board, and are approximate.
- Color code of sleeving over the end of the jacket.



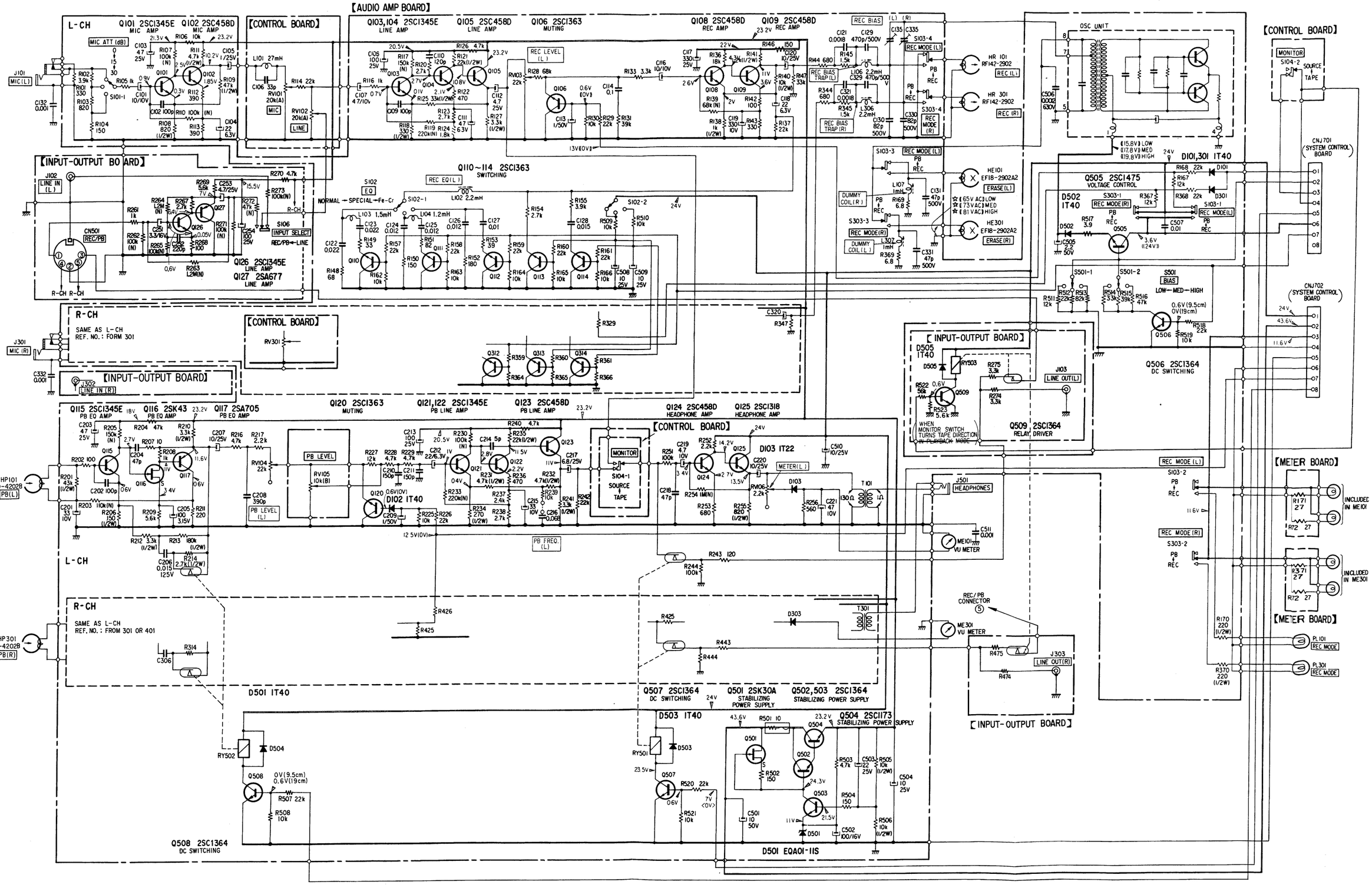
- Readings are taken under no signal conditions and in stop mode with a VOM (20 kΩ/V).
  (( )): record mode.
  ( ): forward mode.
  〈 〉: S607 is ON.
- AC voltage readings indicated by ⋆ in the bias oscillator circuit are taken with a VTVM.



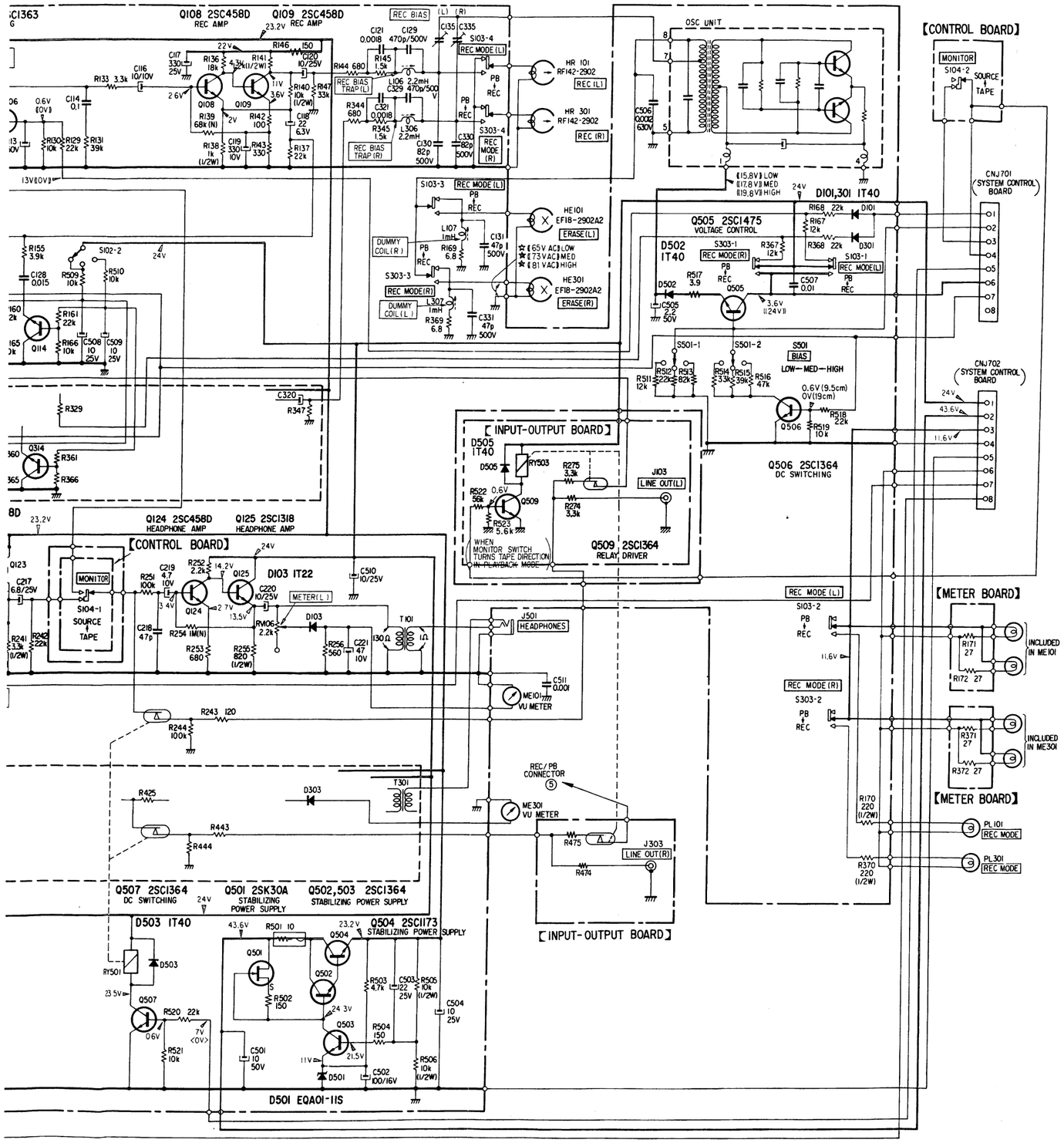
| | | |


AUDIO AMP BOARD
J501 HEADPHONES
J101 MIC (L)
J301 MIC (R)
S101 MIC ATT (dB)
BIAS
TAPE SELECT
EQ
S103 REC MODE (L)
S303 REC MODE (R)
REC MODE
PL101
PL301
S501 LOW MED
S102 S302 SPECIAL
S104 S304 MONITOR
SOURCE TAPE
RV105 PB LEVEL
RV305 PB LEVEL
S101, S501, S102, S302 INTERNAL CONTACT DIAGRAM (FULLY COUNTERCLOCKWISE POSITION)
BIAS OSC UNIT
SONY
DIP IN
[METER BOARD]
ME101 VU METER (INCLUDING LAMP)
ME301 VU METER (INCLUDING LAMP)
1-585-571

4-4. SCHEMATIC DIAGRAM — Amplifier Section (UK, AEP, PX model) —



TC-765



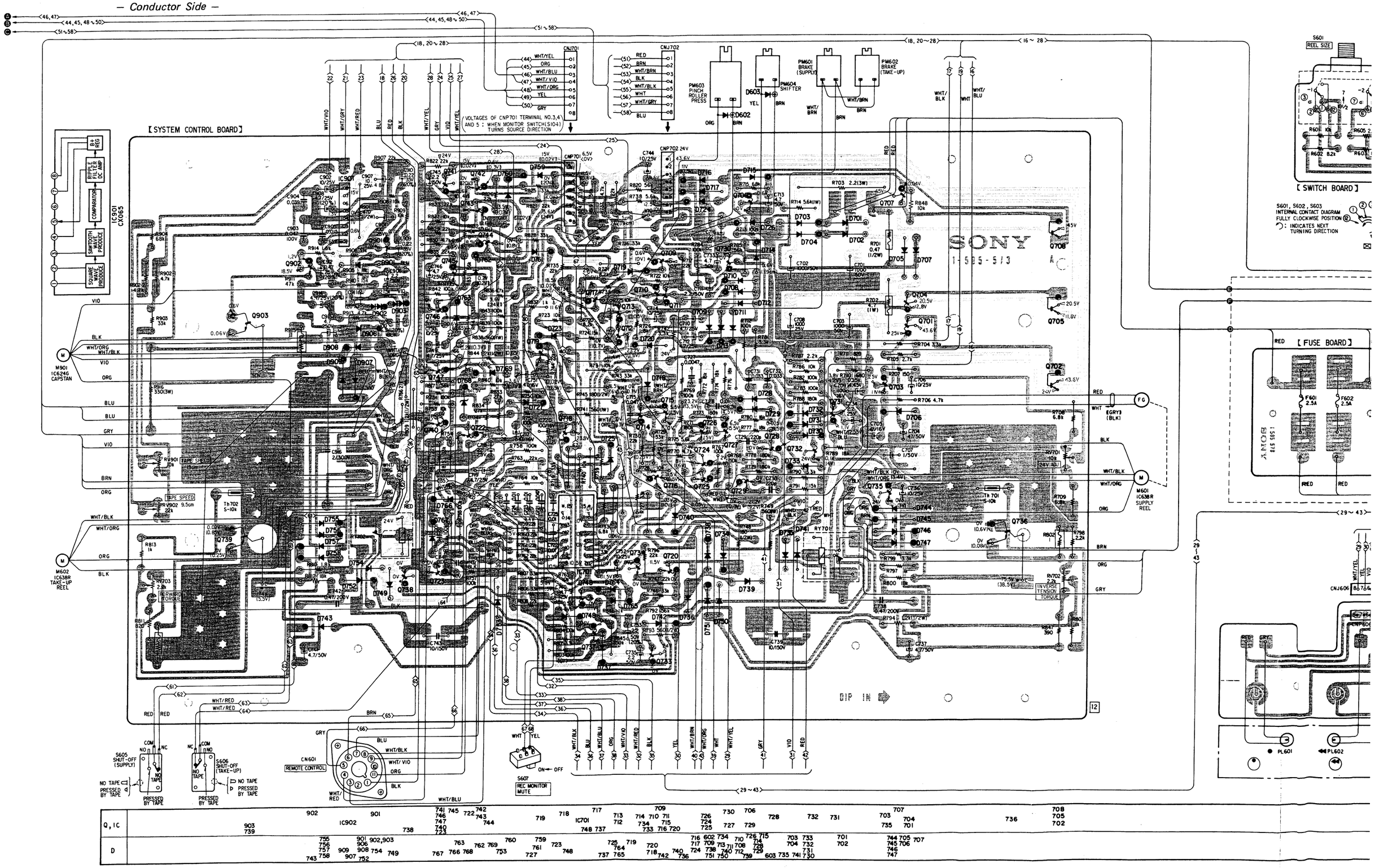
Note:

- Components for right channel have the same values as for left channel. Reference numbers are coded from 301 (REC AMP or PB AMP) or 401 (PB AMP).
- All capacitors are in μF unless otherwise noted. pF = μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000 kΩ
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- (N) : low-noise capacitor and resistor.
- ▨ : B+ bus.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ⏚ : chassis ground.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions and in stop mode with a VOM (20 kΩ/V).
  (( )) : record mode.
  ( ) : forward mode.
  〈 〉 : S607 is ON.
- AC voltage readings indicated by ☆ in the bias oscillator circuit are taken with a VTVM.
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S101,301	MIC ATT	0 (dB)
S102,302	EQ	NORMAL
S103,303	REC MODE	PB
S104,304	MONITOR	TAPE
S106,306	INPUT SELECT	LINE
S501	BIAS	MED

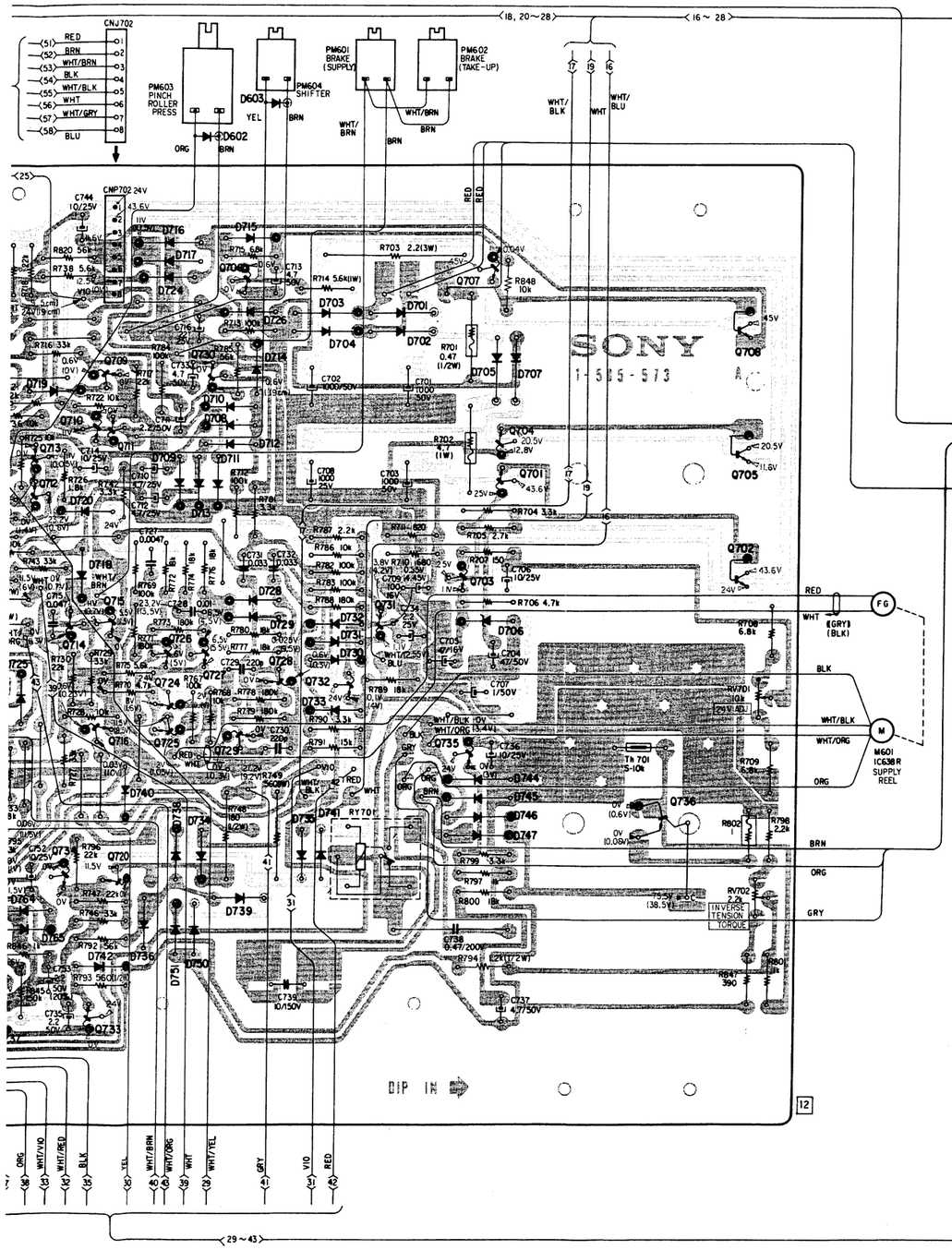
4-5. MOUNTING DIAGRAM — System Control Section —

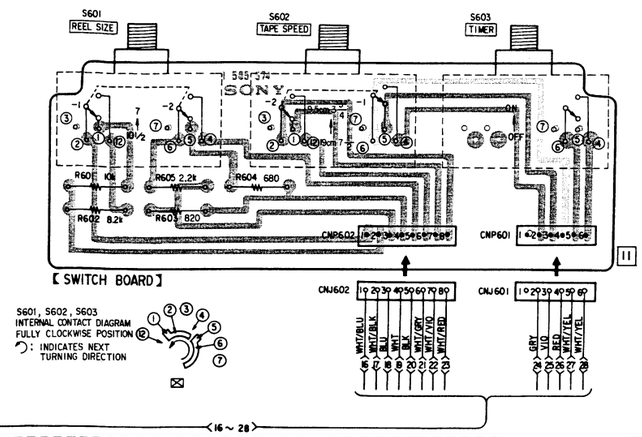
— Conductor Side —

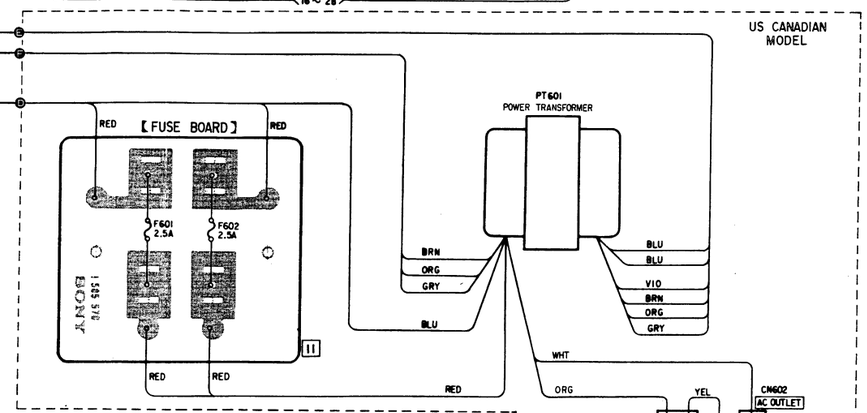


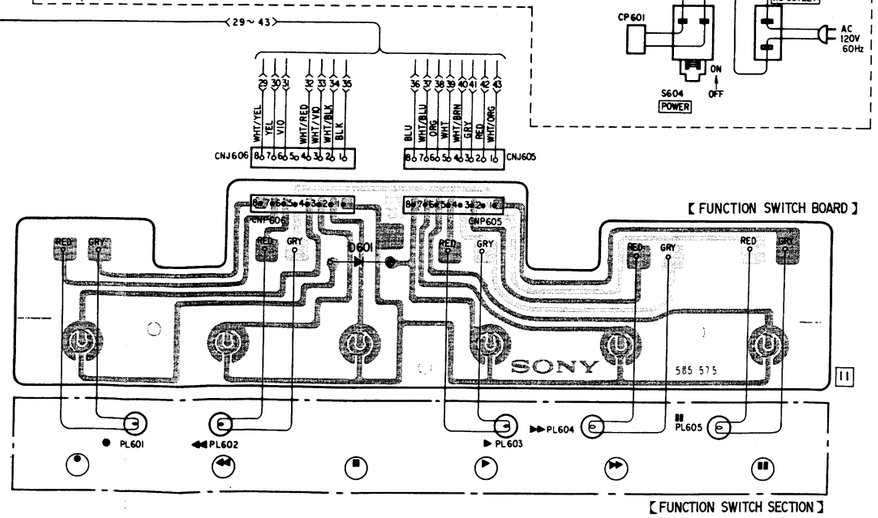
Q, IC	902 901 741 745 722 742 746 743 747 744 740 723 719 718 717 709 713 712 714 710 711 734 715 733 716 720 726 724 725 730 706 727 729 728 732 731 707 703 704 735 701 736 708 705 702 903 739 IC902 738 IC701 748 737
D	755 756 757 758 743 901 906 908 909 907 902,903 754 752 749 763 762 769 760 759 761 727 723 748 725 764 765 719 720 718 737 742 740 736 716 717 602 709 734 724 738 751 713 711 750 710 708 712 726 715 714 728 729 739 603 703 704 733 735 741 732 731 730 701 702 744 745 705 706 746 747 707

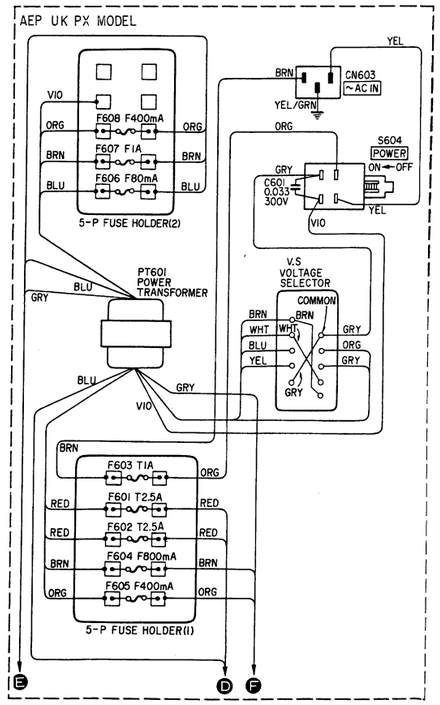
TC-765 TC-765





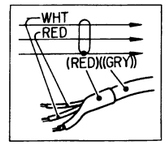






Note:

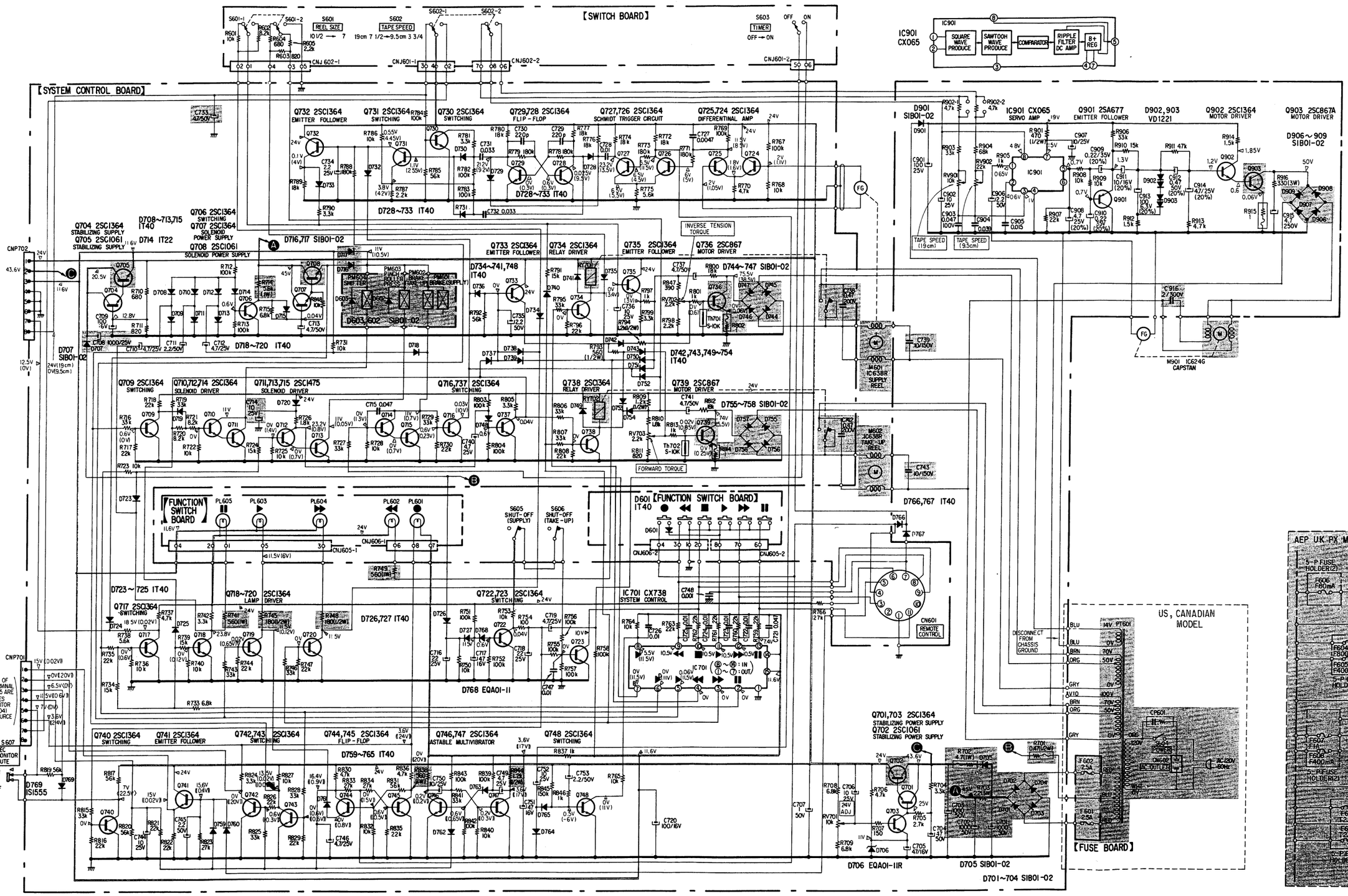
- : B+ pattern.
- Color code of sleeving over the end of the jacket.



- Readings are taken in stop mode with a VOM (20 kΩ/V).
  (( )): record mode.
  ( ): forward mode.
  〈 〉: S607 is ON.

709 713 714 710 711 712 734 715 733 716 720 726 724 725 730 706 727 729 728 732 731 703 707 735 704 701 736 708 705 702	Q, IC
725 719 764 720 718 742 740 736 716 602 734 710 726 715 717 709 708 714 713 711 708 728 724 738 740 712 729 751 750 739 603 703 733 735 741 704 732 731 730 701 702 744 705 707 745 706 746 747	D
601	

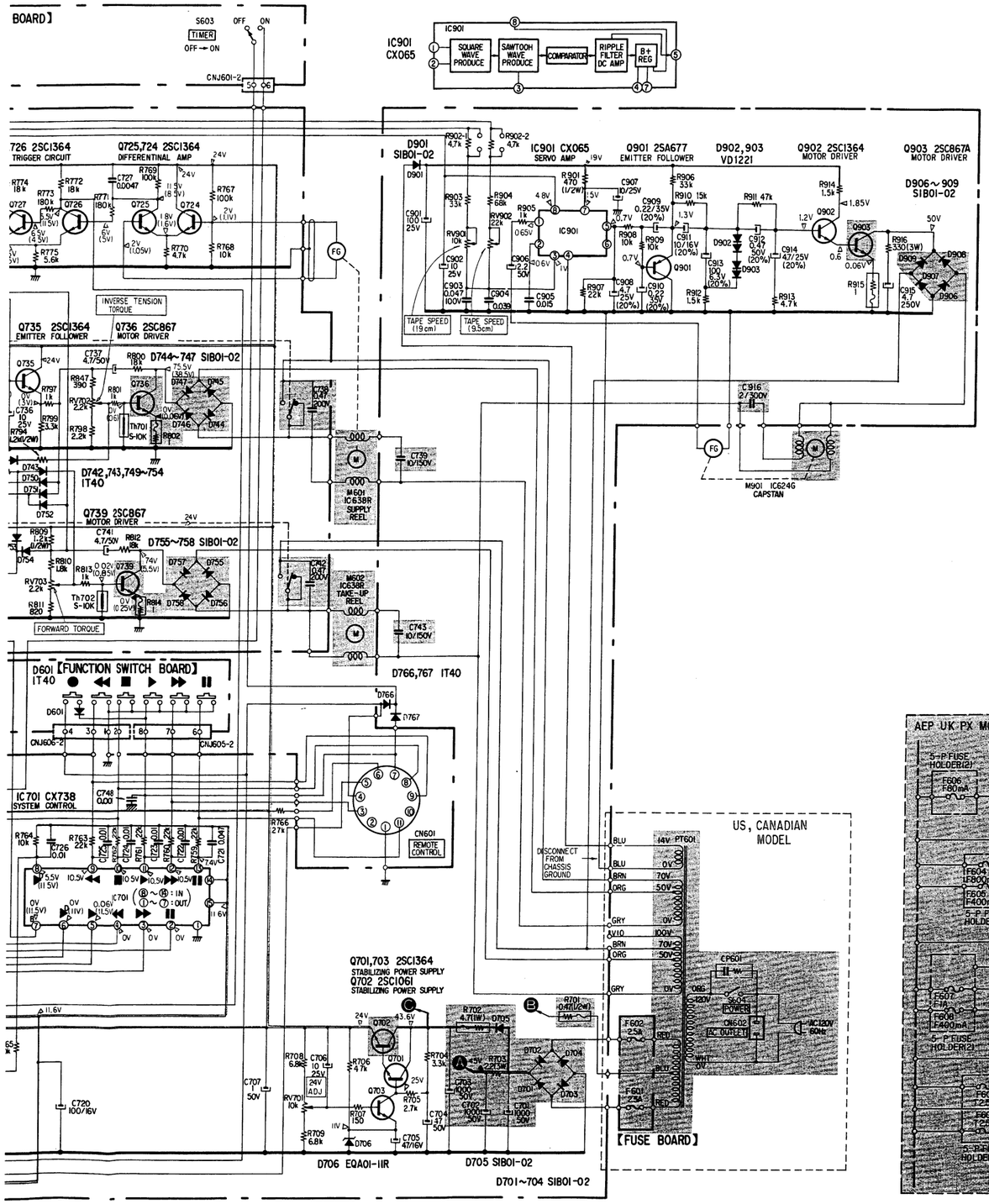
4-6. SCHEMATIC DIAGRAM — System Control Section —



Note:

- All capacitors are 50WV or less are
- All resistors are in kΩ = 1000Ω, MΩ
- ⏦: fusible re
- (N) : low-noise ca
- 20% indicates con
- ▭: B+ bus.
- ▭: panel des
- ▭: adjustmer
- ⏚: direct conn chassis.
- ⏦: chassis grou
- Voltages are dc w noted.
- Readings are taker
  (( )) : record mo
  ( ) : forward m
  〈 〉: S607 is ON
- Voltage variations tion tolerances.
- Switch

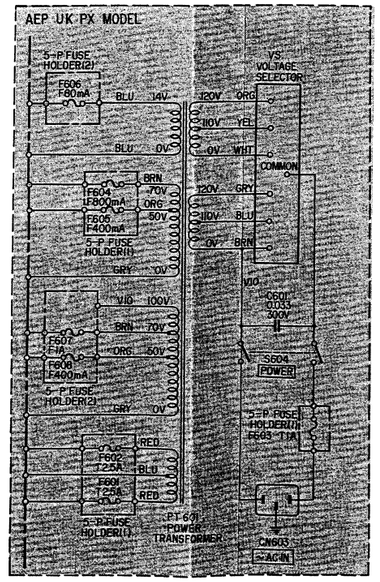
Ref. No.	
S601	R
S602	T
S603	T
S604	P
S605	S
S606	S
S607	R



Note:

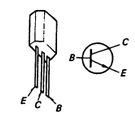
- All capacitors are in μF unless otherwise noted. pF = μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- ⊸⊸⊸ : fusible resistor.
- (N) : low-noise capacitor and resistor.
- 20% indicates component tolerance.
- ▭ : B+ bus.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ⏚ : direct connection to points marked ⏚ on the chassis.
- ⏚ : chassis ground.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken in stop mode with a VOM (20kΩ/V).
  (( )) : record mode.
  ( ) : forward mode.
  〈 〉: S607 is ON.
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S601	REEL SIZE	10½
S602	TAPE SPEED	19cm
S603	TIMER	OFF
S604	POWER	OFF
S605	SHUT-OFF (SUPPLY)	OFF
S606	SHUT-OFF (TAKE-UP)	OFF
S607	REC MONITOR MUTE	OFF

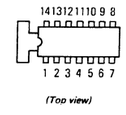


Replacement Semiconductor
For replacement, use semiconductors except in ( ).

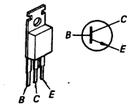
Q701, 703, 704
Q706, 707, 709
Q716–720, 722–735
Q737, 738, 740–748
Q902 : 2SC634A (2SC1364)



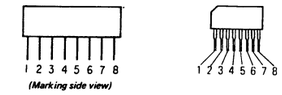
IC701: CX738



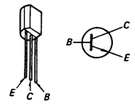
Q702, 705, 708: 2SC1061



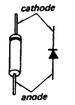
IC901: CX065A (CX065)



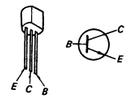
Q710, 712, 714: 2SC1364 (BLUE) (2SC1364)



D601, 708–713
D715, 718–720
D723–743
D748–754
D759–767
D714: 1T22A (1T22)
D769: 1S1555
: 1S1555 (1T40)



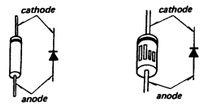
Q711, 713, 715: 2SC1475-13 (2SC1475)



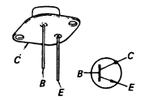
After replacing Q711, 713 or Q715, change the resistor as follows.

Q711: R722 10kΩ → 8.2kΩ
Q713: R725 10kΩ → 8.2kΩ
Q715: R728 10kΩ → 8.2kΩ

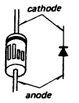
D602, 603
D701–705
D707, 716, 717
D744–747
D755–758
D901, 906–909
: 10E2 (SIB01-02)



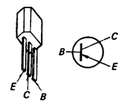
Q736, 739: 2SC867A (2SC867)
Q903: 2SC867A



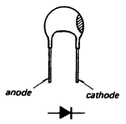
D706, 768: EQB01-11Z (EQA01-11R)



Q901: 2SA678 (2SA677)



D904, 905: VD1221 x 2

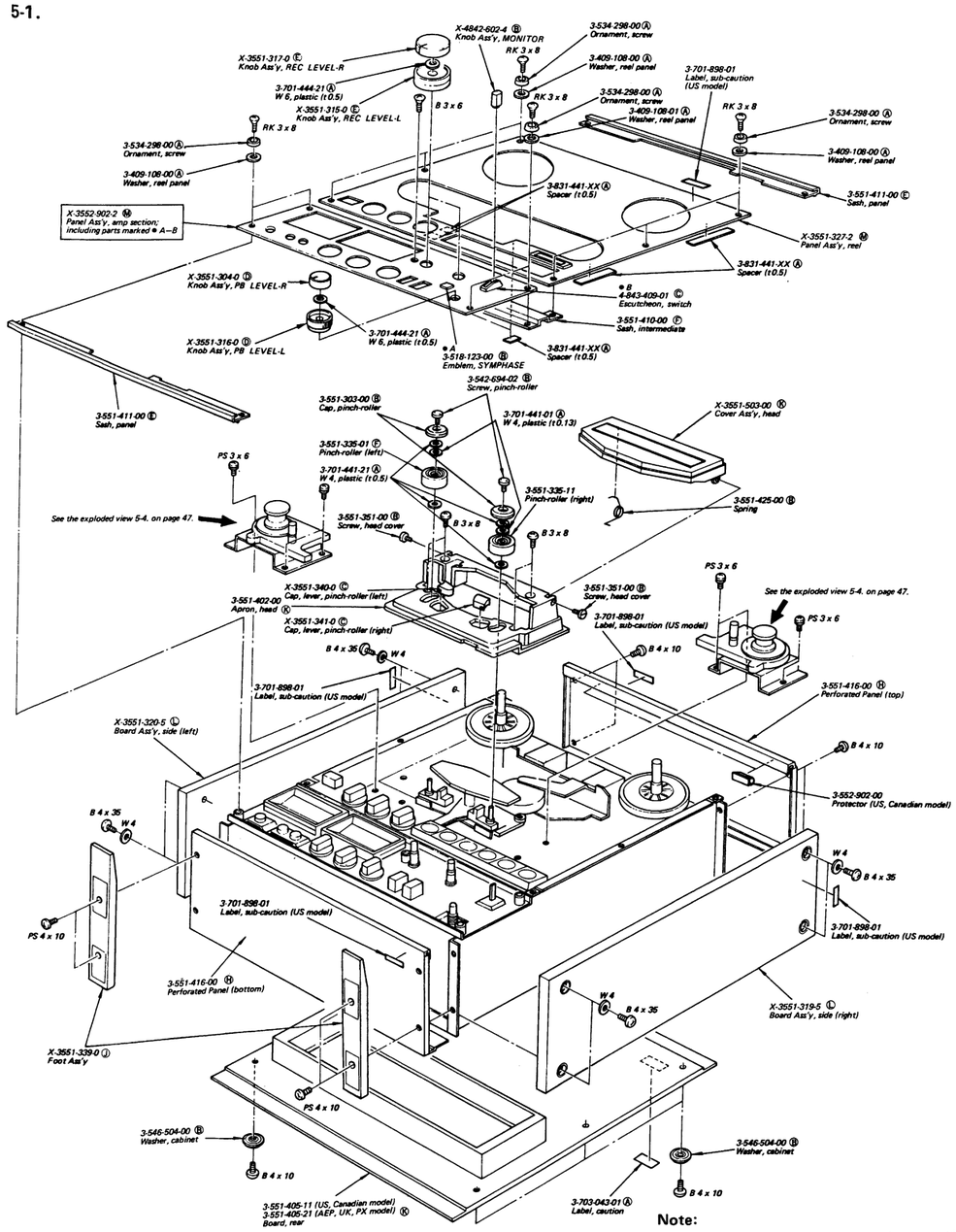


Note: The components identified by shading are critical for safety. Replace only with part number specified.

SONY-00527 / DRUCK 20

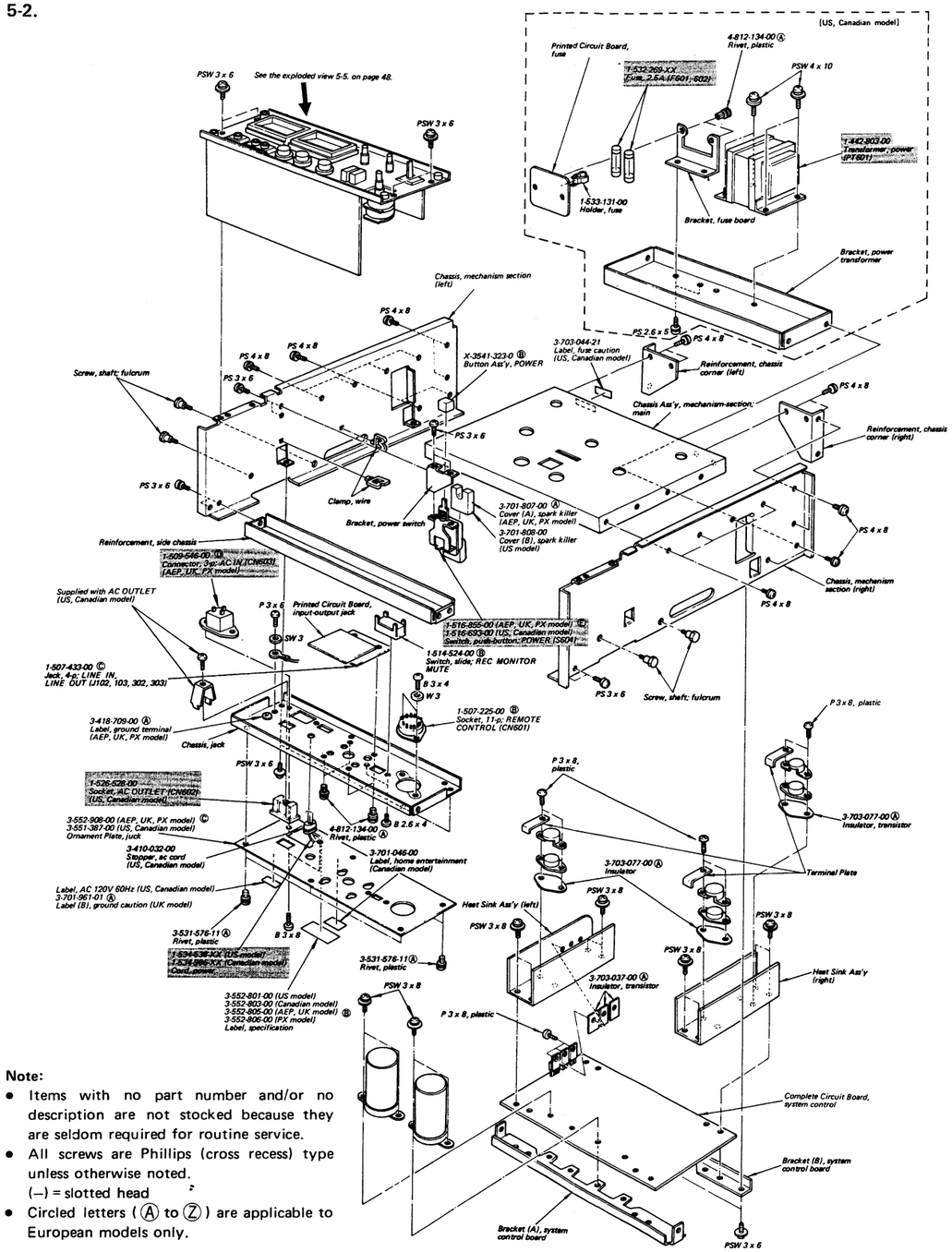
SECTION 5
EXPLODED VIEWS

5-1.


X-4842-602-4 Ⓑ Knob Ass'y, MONITOR
3-534-298-00 Ⓐ Ornament, screw
RK 3 x 8
3-409-108-00 Ⓐ Washer, reel panel
3-701-898-01 Label, sub-caution (US model)
X-3551-317-0 Ⓒ Knob Ass'y, REC LEVEL-R
3-701-444-21 Ⓐ W 6, plastic (t 0.5)
X-3551-315-0 Ⓒ Knob Ass'y, REC LEVEL-L
B 3 x 6
3-534-298-00 Ⓐ Ornament, screw
3-409-108-00 Ⓐ Washer, reel panel
3-551-411-00 Ⓔ Sash, panel
3-831-441-XX Ⓐ Spacer (t 0.5)
X-3552-902-2 Ⓜ Panel Ass'y, amp section; including parts marked * A–B
X-3551-327-2 Ⓜ Panel Ass'y, reel
X-3551-304-0 Ⓓ Knob Ass'y, PB LEVEL-R
4-843-409-01 Ⓒ Escutcheon, switch
X-3551-316-0 Ⓓ Knob Ass'y, PB LEVEL-L
3-551-410-00 Ⓕ Sash, intermediate
3-518-123-00 Ⓑ Emblem, SYMPHASE
3-542-694-02 Ⓑ Screw, pinch-roller
3-551-303-00 Ⓑ Cap, pinch-roller
3-701-441-01 Ⓐ W 4, plastic (t 0.13)
X-3551-503-00 Ⓚ Cover Ass'y, head
3-551-335-01 Ⓕ Pinch-roller (left)
3-701-441-21 Ⓐ W 4, plastic (t 0.5)
3-551-335-11 Pinch-roller (right)
3-551-425-00 Ⓑ Spring
PS 3 x 6
See the exploded view 5-4. on page 47.
3-551-351-00 Ⓑ Screw, head cover
B 3 x 8
X-3551-340-0 Ⓒ Cap, lever, pinch-roller (left)
3-551-402-00 Apron, head Ⓚ
X-3551-341-0 Ⓒ Cap, lever, pinch-roller (right)
B 4 x 35
W 4
3-701-898-01 Label, sub-caution (US model)
B 4 x 10
3-551-416-00 Ⓡ Perforated Panel (top)
X-3551-320-5 Ⓛ Board Ass'y, side (left)
3-552-902-00 Protector (US, Canadian model)
PS 4 x 10
3-551-416-00 Ⓡ Perforated Panel (bottom)
X-3551-319-5 Ⓛ Board Ass'y, side (right)
X-3551-339-0 Ⓙ Foot Ass'y
3-546-504-00 Ⓑ Washer, cabinet
3-551-405-11 (US, Canadian model) 3-551-405-21 (AEP, UK, PX model) Ⓚ Board, rear
3-703-043-01 Ⓐ Label, caution

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

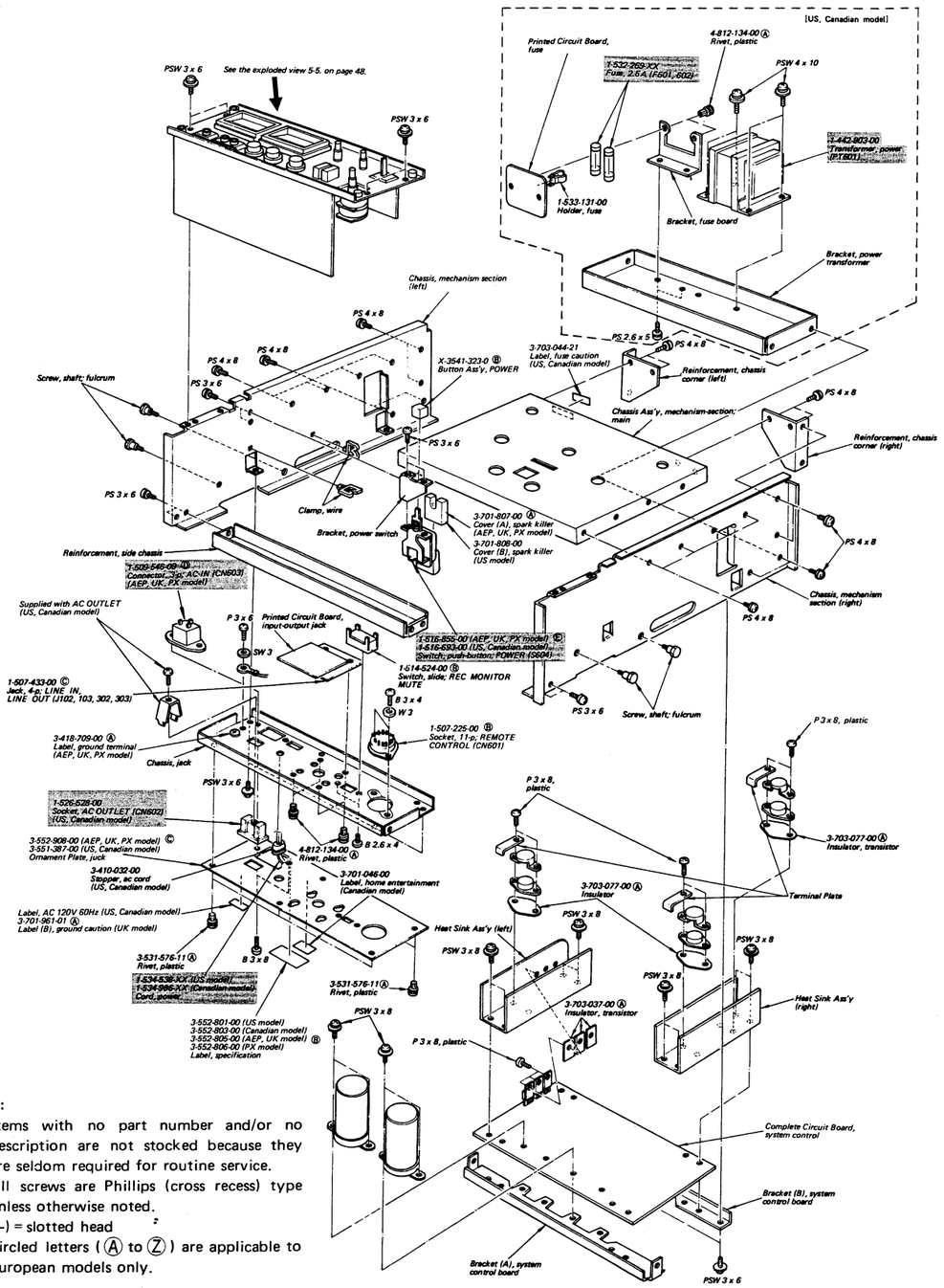
5-2.


PSW 3 x 6
See the exploded view 5-5. on page 48.
[US, Canadian model]
Printed Circuit Board, fuse
1-532-269-XX Fuse, 2.5A (F601, 602)
4-812-134-00 Ⓐ Rivet, plastic
PSW 4 x 10
1-533-131-00 Holder, fuse
T 442-903.00 Transformer, power (PT601)
Bracket, fuse board
Bracket, power transformer
Chassis, mechanism section (left)
PS 4 x 8
PS 2.6 x 5
3-703-044-21 Label, fuse caution (US, Canadian model)
Reinforcement, chassis corner (left)
Screw, shaft; fulcrum
X-3541-323-0 Ⓑ Button Ass'y, POWER
Chassis Ass'y, mechanism section; main
Reinforcement, chassis corner (right)
PS 3 x 6
Clamp, wire
Bracket, power switch
3-701-807-00 Ⓐ Cover (A), spark killer (AEP, UK, PX model)
3-701-808-00 Cover (B), spark killer (US model)
Reinforcement, side chassis
1-509-546-00 Ⓑ Connector, 3-p; AC IN (CN603) (AEP, UK, PX model)
Supplied with AC OUTLET (US, Canadian model)
P 3 x 6
Printed Circuit Board, input-output jack
SW 3
1-516-855-00 (AEP, UK, PX model) Ⓑ 1-516-693-00 (US, Canadian model) Switch, push-button; POWER (S601)
1-614-524-00 Ⓑ Switch, slide; REC MONITOR MUTE
B 3 x 4
W 3
1-507-433-00 Ⓒ Jack, 4-p; LINE IN, LINE OUT (J102, 103, 302, 303)
1-507-225-00 Ⓑ Socket, 11-p; REMOTE CONTROL (CN601)
3-418-709-00 Ⓐ Label, ground terminal (AEP, UK, PX model)
Chassis, jack
1-526-528-00 Socket, AC OUTLET (CN602) (US, Canadian model)
3-552-908-00 (AEP, UK, PX model) Ⓒ 3-551-387-00 (US, Canadian model) Ornament Plate, jack
3-410-032-00 Stopper, ac cord (US, Canadian model)
Label, AC 120V 60Hz (US, Canadian model)
3-701-961-01 Ⓑ Label (B), ground caution (UK model)
B 2.6 x 4
4-812-134-00 Ⓐ Rivet, plastic
3-701-046-00 Label, home entertainment (Canadian model)
3-531-576-11 Ⓐ Rivet, plastic
B 3 x 8
1-534-636-XX (US model) 1-534-666-XX (Canadian model) Cord, power
3-552-801-00 (US model) 3-552-803-00 (Canadian model) 3-552-805-00 (AEP, UK model) 3-552-806-00 (PX model) Ⓑ Label, specification
P 3 x 8, plastic
3-703-077-00 Ⓐ Insulator
Terminal Plate
Heat Sink Ass'y (left)
PSW 3 x 8
3-703-037-00 Ⓐ Insulator, transistor
Heat Sink Ass'y (right)
Complete Circuit Board, system control
Bracket (B), system control board
Bracket (A), system control board

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

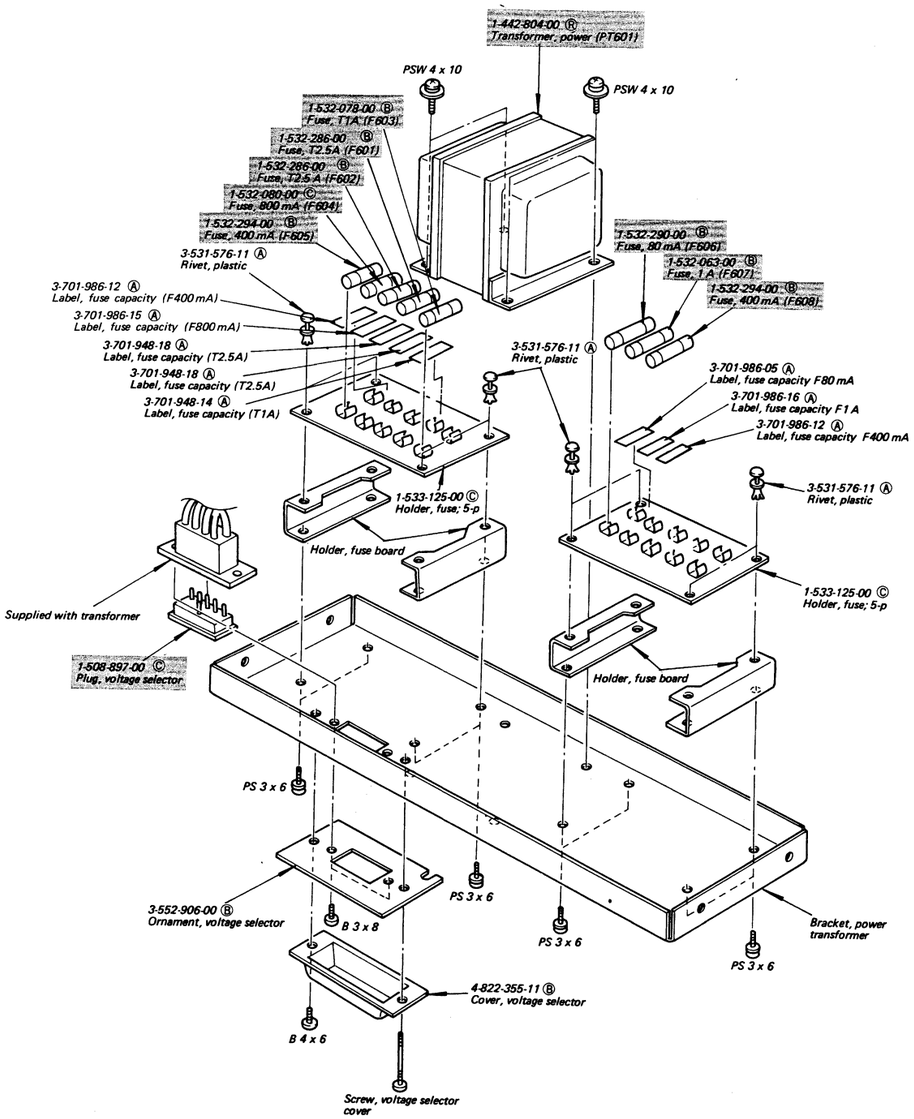
5-2.


[US, Canadian model]
PSW 3 x 6
See the exploded view 5-5. on page 48.
PSW 3 x 6
Printed Circuit Board, fuse
1-532-269-XX Fuse, 2.5A (F601, 602)
4-812-134-00 Ⓐ Rivet, plastic
PSW 4 x 10
1-442-803-00 Transformer, power (PT601)
1-533-131-00 Holder, fuse
Bracket, fuse board
Bracket, power transformer
Chassis, mechanism section (left)
PS 4 x 8
PS 4 x 8
PS 4 x 8
PS 2.6 x 5
PS 4 x 8
X-3541-323-0 Ⓑ Button Ass'y, POWER
3-703-044-21 Label, fuse caution (US, Canadian model)
Reinforcement, chassis corner (left)
Screw, shaft; fulcrum
PS 3 x 6
Chassis Ass'y, mechanism section, main
PS 4 x 8
Reinforcement, chassis corner (right)
PS 3 x 6
Clamp, wire
Bracket, power switch
3-701-807-00 Ⓐ Cover (A), spark killer (AEP, UK, PX model)
3-701-808-00 Cover (B), spark killer (US model)
PS 4 x 8
Reinforcement, side chassis
1-509-546-00 Ⓓ Connector, 3p; AC-IN (CN603) (AEP, UK, PX model)
Chassis, mechanism section (right)
PS 4 x 8
Supplied with AC OUTLET (US, Canadian model)
P 3 x 6
Printed Circuit Board, input-output jack
SW 3
1-516-855-00 (AEP, UK, PX model) Ⓒ
1-516-693-00 (US, Canadian model)
Switch, push-button; POWER (S604)
1-514-524-00 Ⓑ Switch, slide; REC MUTE
B 3 x 4
W 3
PS 3 x 6
Screw, shaft; fulcrum
1-507-433-00 Ⓒ Jack, 4-p; LINE IN, LINE OUT (J102, 103, 302, 303)
1-507-225-00 Ⓑ Socket, 11-p; REMOTE CONTROL (CN601)
P 3 x 8, plastic
3-418-709-00 Ⓐ Label, ground terminal (AEP, UK, PX model)
Chassis, jack
PSW 3 x 6
P 3 x 8, plastic
3-703-077-00 Ⓐ Insulator, transistor
1-526-528-00 Socket, AC OUTLET (CN602) (US, Canadian model)
3-552-908-00 (AEP, UK, PX model) Ⓒ
3-551-387-00 (US, Canadian model)
Ornament Plate, jack
4-812-134-00 Ⓐ Rivet, plastic
B 2.6 x 4
3-701-046-00 Label, home entertainment (Canadian model)
3-703-077-00 Ⓐ Insulator
Terminal Plate
3-410-032-00 Stopper, ac cord (US, Canadian model)
PSW 3 x 8
Label, AC 120V 60Hz (US, Canadian model)
3-701-961-01 Ⓐ Label (B), ground caution (UK model)
Heat Sink Ass'y (left)
PSW 3 x 8
PSW 3 x 8
PSW 3 x 8
3-531-576-11 Ⓐ Rivet, plastic
B 3 x 8
1-534-538-XX (US model)
1-534-986-XX (Canadian model)
Cord, power
3-531-576-11 Ⓐ Rivet, plastic
3-703-037-00 Ⓐ Insulator, transistor
Heat Sink Ass'y (right)
PSW 3 x 8
3-552-801-00 (US model)
3-552-803-00 (Canadian model)
3-552-805-00 (AEP, UK model) Ⓑ
3-552-806-00 (PX model)
Label, specification
P 3 x 8, plastic
Complete Circuit Board, system control
Bracket (B), system control board
Bracket (A), system control board
PSW 3 x 6

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

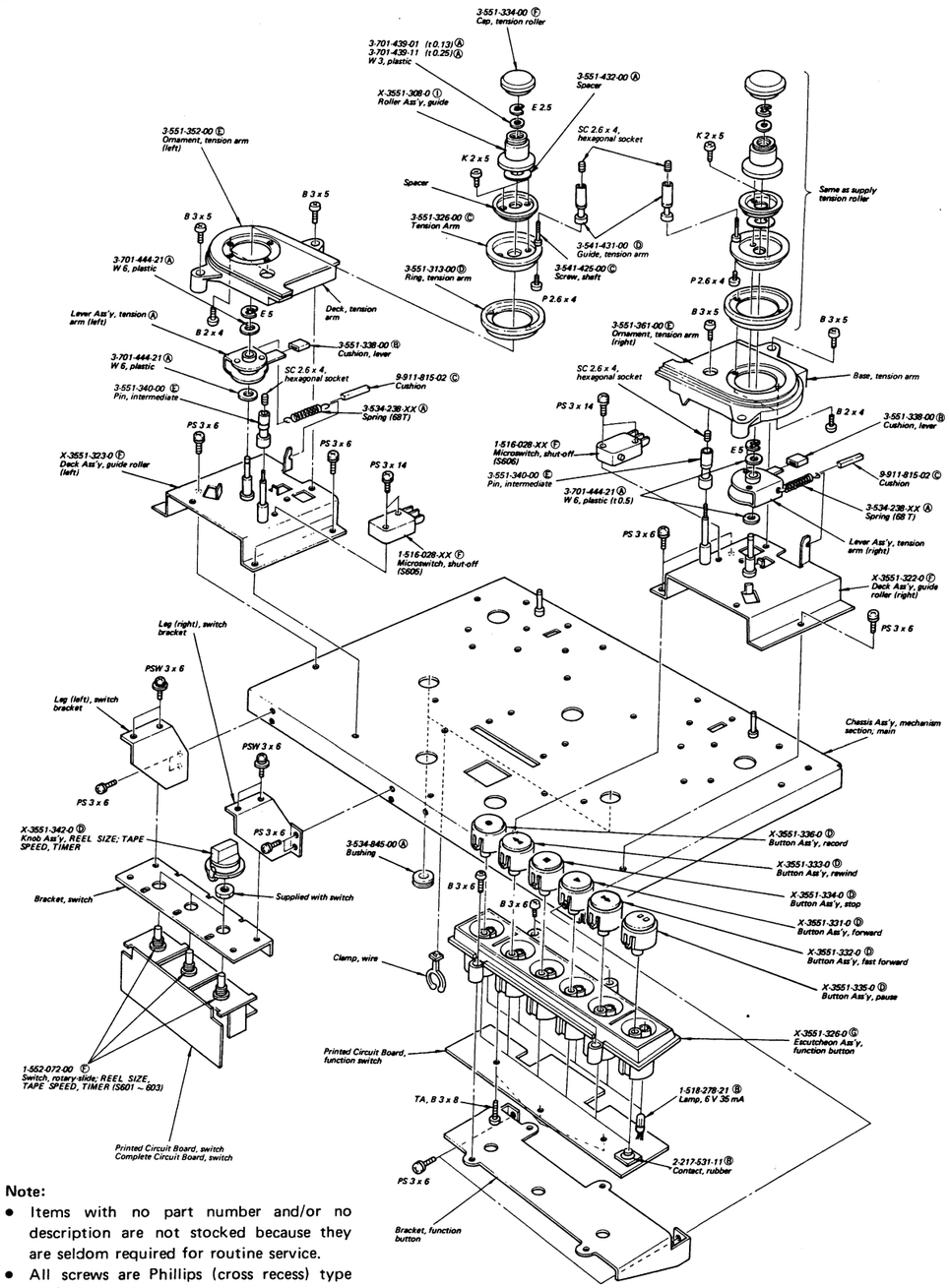
5-3. AEP, UK, PX model


1-442-804-00 Ⓡ Transformer, power (PT601)
PSW 4 x 10
PSW 4 x 10
1-532-078-00 Ⓑ Fuse, T1A (F603)
1-532-286-00 Ⓑ Fuse, T2.5A (F601)
1-532-286-00 Ⓑ Fuse, T2.5A (F602)
1-532-080-00 Ⓒ Fuse, 800 mA (F604)
1-532-294-00 Ⓑ Fuse, 400 mA (F605)
3-531-576-11 Ⓐ Rivet, plastic
1-532-290-00 Ⓑ Fuse, 80 mA (F606)
1-532-063-00 Ⓑ Fuse, 1 A (F607)
1-532-294-00 Ⓑ Fuse, 400 mA (F608)
3-701-986-12 Ⓐ Label, fuse capacity (F400 mA)
3-701-986-15 Ⓐ Label, fuse capacity (F800 mA)
3-701-948-18 Ⓐ Label, fuse capacity (T2.5A)
3-701-948-18 Ⓐ Label, fuse capacity (T2.5A)
3-701-948-14 Ⓐ Label, fuse capacity (T1A)
3-531-576-11 Ⓐ Rivet, plastic
3-701-986-05 Ⓐ Label, fuse capacity F80 mA
3-701-986-16 Ⓐ Label, fuse capacity F1 A
3-701-986-12 Ⓐ Label, fuse capacity F400 mA
1-533-125-00 Ⓒ Holder, fuse; 5-p
3-531-576-11 Ⓐ Rivet, plastic
Holder, fuse board
1-533-125-00 Ⓒ Holder, fuse; 5-p
Supplied with transformer
1-508-897-00 Ⓒ Plug, voltage selector
Holder, fuse board
PS 3 x 6
3-552-906-00 Ⓑ Ornament, voltage selector
B 3 x 8
PS 3 x 6
PS 3 x 6
Bracket, power transformer
PS 3 x 6
4-822-355-11 Ⓑ Cover, voltage selector
B 4 x 6
Screw, voltage selector cover

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

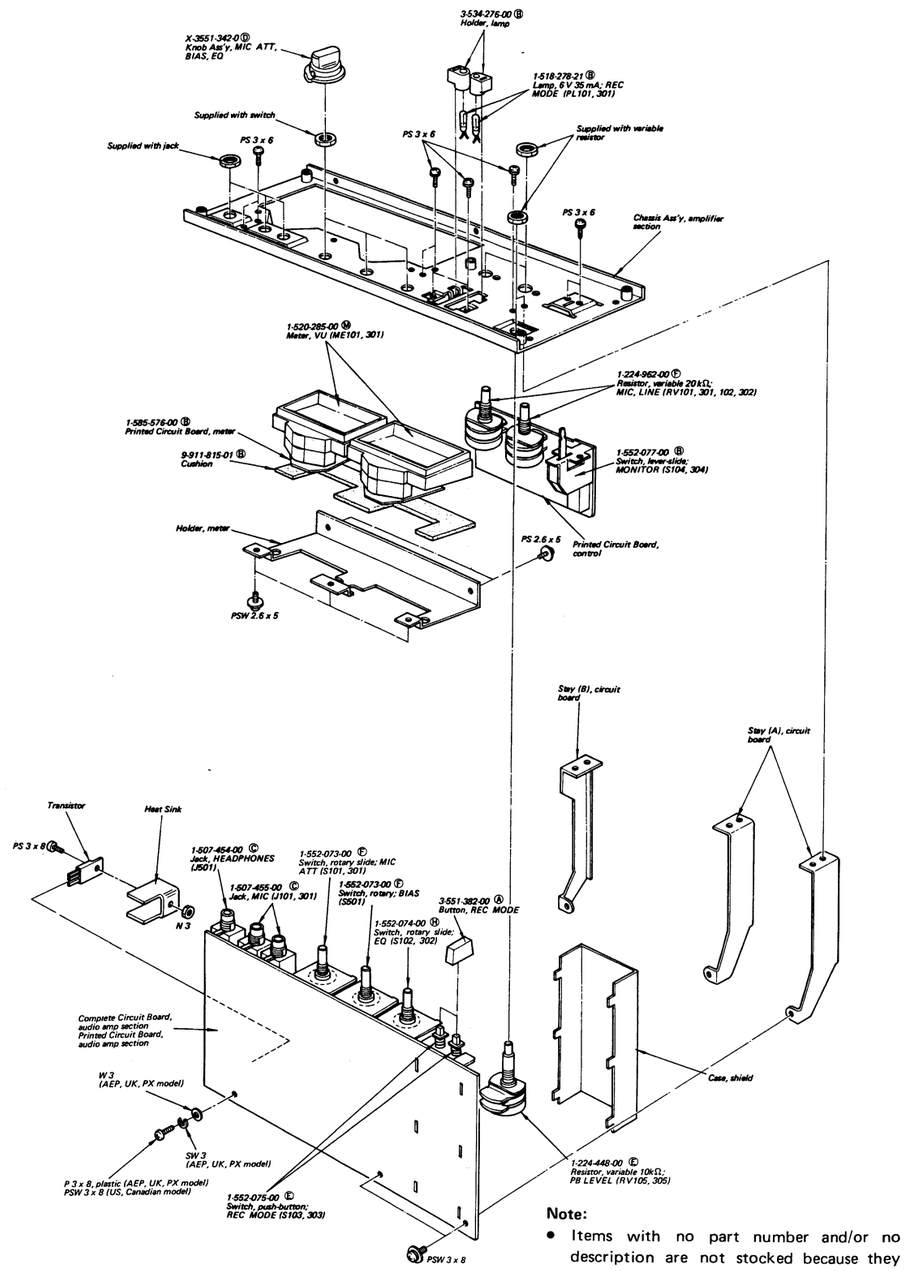
5-4.


3-551-334-00 Ⓕ Cap, tension roller
3-701-439-01 (t0.13) Ⓐ
3-701-439-11 (t0.25) Ⓐ
W 3, plastic
X-3551-308-0 ① Roller Ass'y, guide
3-551-432-00 Ⓐ Spacer
E 2.5
SC 2.6 x 4, hexagonal socket
K 2 x 5
Spacer
3-551-326-00 Ⓒ Tension Arm
3-551-313-00 Ⓓ Ring, tension arm
3-541-431-00 Ⓓ Guide, tension arm
3-541-425-00 Ⓒ Screw, shaft
P 2.6 x 4
3-551-352-00 Ⓔ Ornament, tension arm (left)
B 3 x 5
3-701-444-21 Ⓐ W 6, plastic
E 5
Lever Ass'y, tension arm (left)
B 2 x 4
3-551-338-00 Ⓑ Cushion, lever
9-911-815-02 Ⓒ Cushion
3-534-238-XX Ⓐ Spring (6BT)
3-551-340-00 Ⓔ Pin, intermediate
PS 3 x 6
PS 3 x 14
X-3551-323-0 Ⓕ Deck Ass'y, guide roller (left)
1-516-028-XX Ⓕ Microswitch, shut-off (5806)
Deck, tension arm
Same as supply tension roller
3-551-361-00 Ⓔ Ornament, tension arm (right)
Base, tension arm
1-516-028-XX Ⓕ Microswitch, shut-off (5806)
3-701-444-21 Ⓐ W 6, plastic (t0.5)
Lever Ass'y, tension arm (right)
X-3551-322-0 Ⓕ Deck Ass'y, guide roller (right)
Leg (right), switch bracket
PSW 3 x 6
Leg (left), switch bracket
Chassis Ass'y, mechanism section, main
X-3551-342-0 Ⓓ Knob Ass'y, REEL SIZE; TAPE SPEED, TIMER
Bracket, switch
Supplied with switch
3-534-845-00 Ⓐ Bushing
X-3551-336-0 Ⓓ Button Ass'y, record
X-3551-333-0 Ⓓ Button Ass'y, rewind
X-3551-334-0 Ⓓ Button Ass'y, stop
X-3551-331-0 Ⓓ Button Ass'y, forward
X-3551-332-0 Ⓓ Button Ass'y, fast forward
X-3551-335-0 Ⓓ Button Ass'y, pause
Clamp, wire
X-3551-326-0 Ⓒ Escutcheon Ass'y, function button
Printed Circuit Board, function switch
1-518-278-21 Ⓑ Lamp, 6 V 35 mA
TA, B 3 x 8
2-217-531-11 Ⓑ Contact, rubber
1-552-072-00 Ⓒ Switch, rotary-slide; REEL SIZE, TAPE SPEED, TIMER (S601 ~ 603)
Printed Circuit Board, switch
Complete Circuit Board, switch
Bracket, function button

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.
- (□□T) shows the number of coils in spring.

5-5.


3-534-276-00 Ⓑ Holder, lamp
X-3551-342-0 Ⓓ Knob Ass'y, MIC ATT, BIAS, EQ
1-518-278-21 Ⓑ Lamp, 6 V 35 mA; REC MODE (PL101, 301)
Supplied with switch
Supplied with jack
PS 3 x 6
Supplied with variable resistor
Chassis Ass'y, amplifier section
1-520-285-00 Ⓜ Meter, VU (ME101, 301)
1-224-962-00 Ⓕ Resistor, variable 20kΩ; MIC, LINE (RV101, 301, 102, 302)
1-585-576-00 Ⓑ Printed Circuit Board, meter
9-911-815-01 Ⓑ Cushion
1-552-077-00 Ⓑ Switch, lever-slide; MONITOR (S104, 304)
Holder, meter
PS 2.6 x 5
Printed Circuit Board, control
PSW 2.6 x 5
Stay (B), circuit board
Stay (A), circuit board
Transistor
Heat Sink
1-507-454-00 Ⓒ Jack, HEADPHONES (J501)
1-507-455-00 Ⓒ Jack, MIC (J101, 301)
1-552-073-00 Ⓕ Switch, rotary slide; MIC ATT (S101, 301)
1-552-073-00 Ⓕ Switch, rotary; BIAS (S501)
3-551-382-00 Ⓐ Button, REC MODE
1-552-074-00 Ⓗ Switch, rotary slide; EQ (S102, 302)
N 3
Complete Circuit Board, audio amp section
Printed Circuit Board, audio amp section
W 3 (AEP, UK, PX model)
SW 3 (AEP, UK, PX model)
P 3 x 8, plastic (AEP, UK, PX model)
PSW 3 x 8 (US, Canadian model)
1-552-075-00 Ⓔ Switch, push-button; REC MODE (S103, 303)
Case, shield
1-224-448-00 Ⓔ Resistor, variable 10kΩ; PB LEVEL (RV105, 305)
PSW 3 x 8

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

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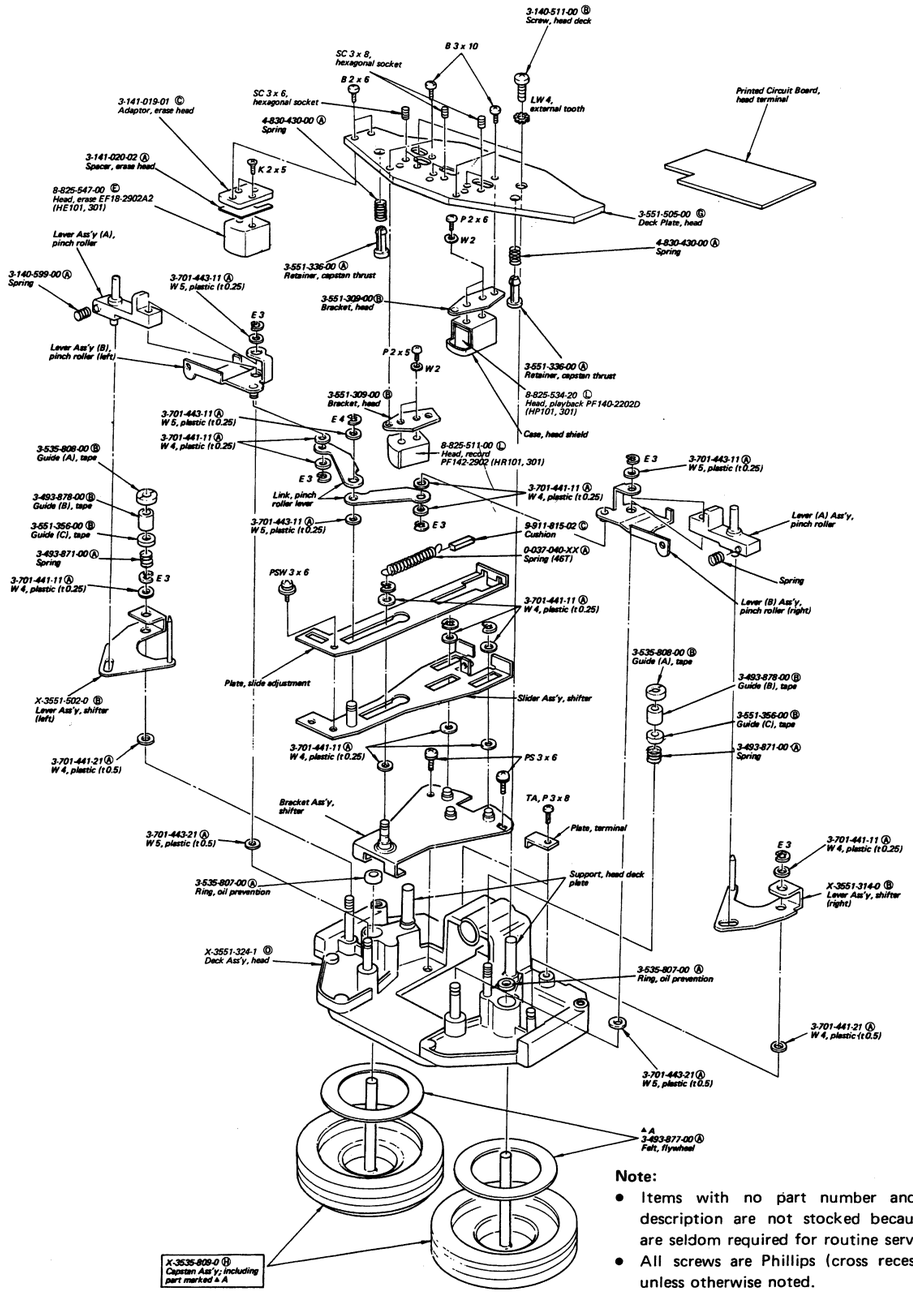
5-6.


3-140-511-00 Ⓑ Screw, head deck
B 3 x 10
SC 3 x 8, hexagonal socket
B 2 x 6
SC 3 x 6, hexagonal socket
LW 4, external tooth
3-141-019-01 Ⓒ Adaptor, erase head
4-830-430-00 Ⓐ Spring
Printed Circuit Board, head terminal
3-141-020-02 Ⓐ Spacer, erase head
K 2 x 5
8-825-547-00 Ⓒ Head, erase EF18-2902A2 (HE101, 301)
3-551-505-00 Ⓔ Deck Plate, head
P 2 x 6
W 2
4-830-430-00 Ⓐ Spring
Lever Ass'y (A), pinch roller
3-551-336-00 Ⓐ Retainer, capstan thrust
3-140-599-00 Ⓐ Spring
3-701-443-11 Ⓐ W 5, plastic (t 0.25)
3-551-309-00 Ⓑ Bracket, head
E 3
Lever Ass'y (B), pinch roller (left)
P 2 x 5
W 2
3-551-336-00 Ⓐ Retainer, capstan thrust
6-825-534-20 Ⓛ Head, playback PF140-2202D (HP101, 301)
3-551-309-00 Ⓑ Bracket, head
E 4
3-701-443-11 Ⓐ W 5, plastic (t 0.25)
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
Case, head shield
8-825-511-00 Ⓛ Head, record PF142-2902 (HR101, 301)
3-535-808-00 Ⓑ Guide (A), tape
E 3
3-701-443-11 Ⓐ W 5, plastic (t 0.25)
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
3-493-878-00 Ⓑ Guide (B), tape
Link, pinch roller lever
3-551-356-00 Ⓑ Guide (C), tape
E 3
8-811-815-02 Ⓒ Cushion
3-493-871-00 Ⓐ Spring
0-037-040-XX Ⓐ Spring (46T)
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
PSW 3 x 6
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
Plate, slide adjustment
Slider Ass'y, shifter
X-3551-502-0 Ⓑ Lever Ass'y, shifter (left)
3-701-441-21 Ⓐ W 4, plastic (t 0.5)
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
PS 3 x 6
Bracket Ass'y, shifter
TA, P 3 x 8
Plate, terminal
3-701-443-21 Ⓐ W 5, plastic (t 0.5)
3-535-807-00 Ⓐ Ring, oil prevention
Support, head deck plate
X-3551-324-1 Ⓞ Deck Ass'y, head
3-535-807-00 Ⓐ Ring, oil prevention
3-701-441-21 Ⓐ W 4, plastic (t 0.5)
3-701-443-21 Ⓐ W 5, plastic (t 0.5)
▲A 3-493-877-00 Ⓐ Felt, flywheel
X-3535-809-0 Ⓡ Capstan Ass'y; including part marked ▲A
E 3
3-701-443-11 Ⓐ W 5, plastic (t 0.25)
Lever (A) Ass'y, pinch roller
Spring
Lever (B) Ass'y, pinch roller (right)
3-535-808-00 Ⓑ Guide (A), tape
3-493-878-00 Ⓑ Guide (B), tape
3-551-356-00 Ⓑ Guide (C), tape
3-493-871-00 Ⓐ Spring
E 3
3-701-441-11 Ⓐ W 4, plastic (t 0.25)
X-3551-314-0 Ⓑ Lever Ass'y, shifter (right)

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  (–) = slotted head
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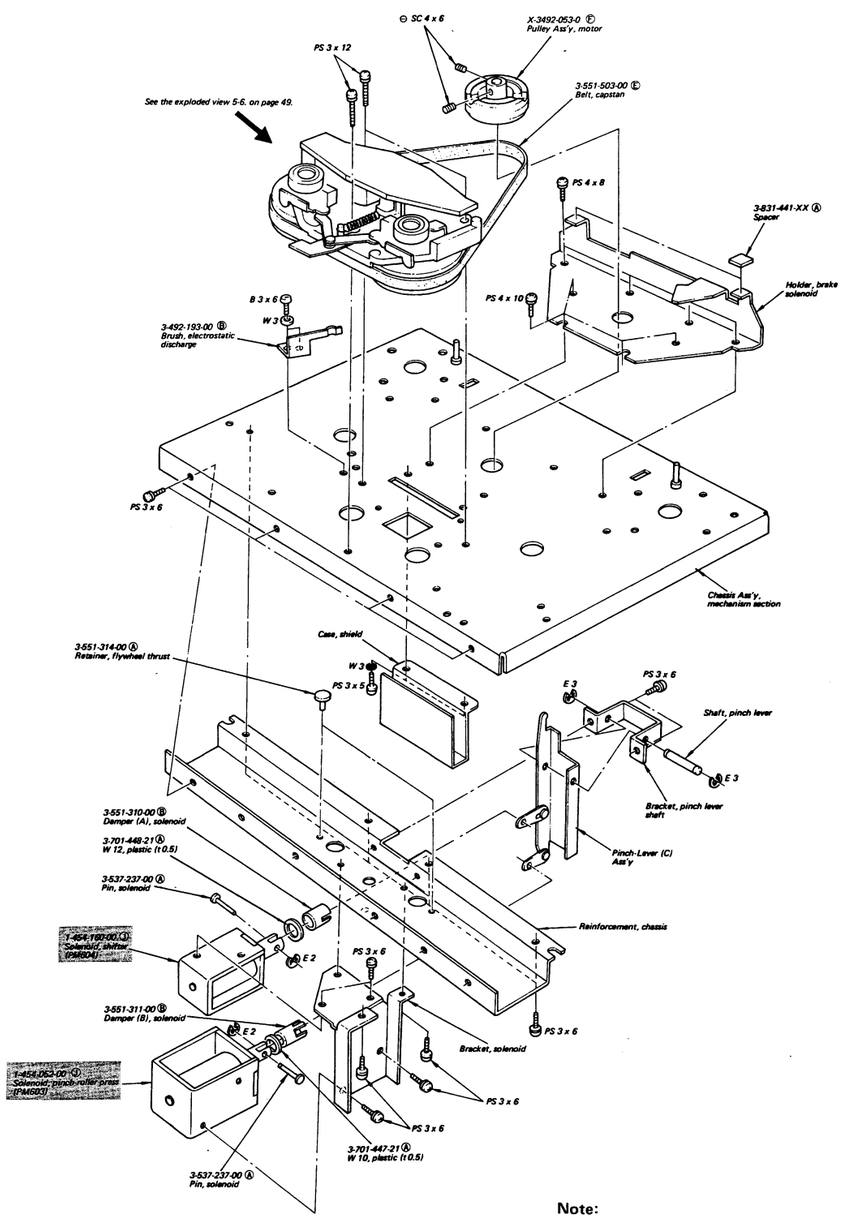
- (□□T) shows the number of coils in spring.

5-7.

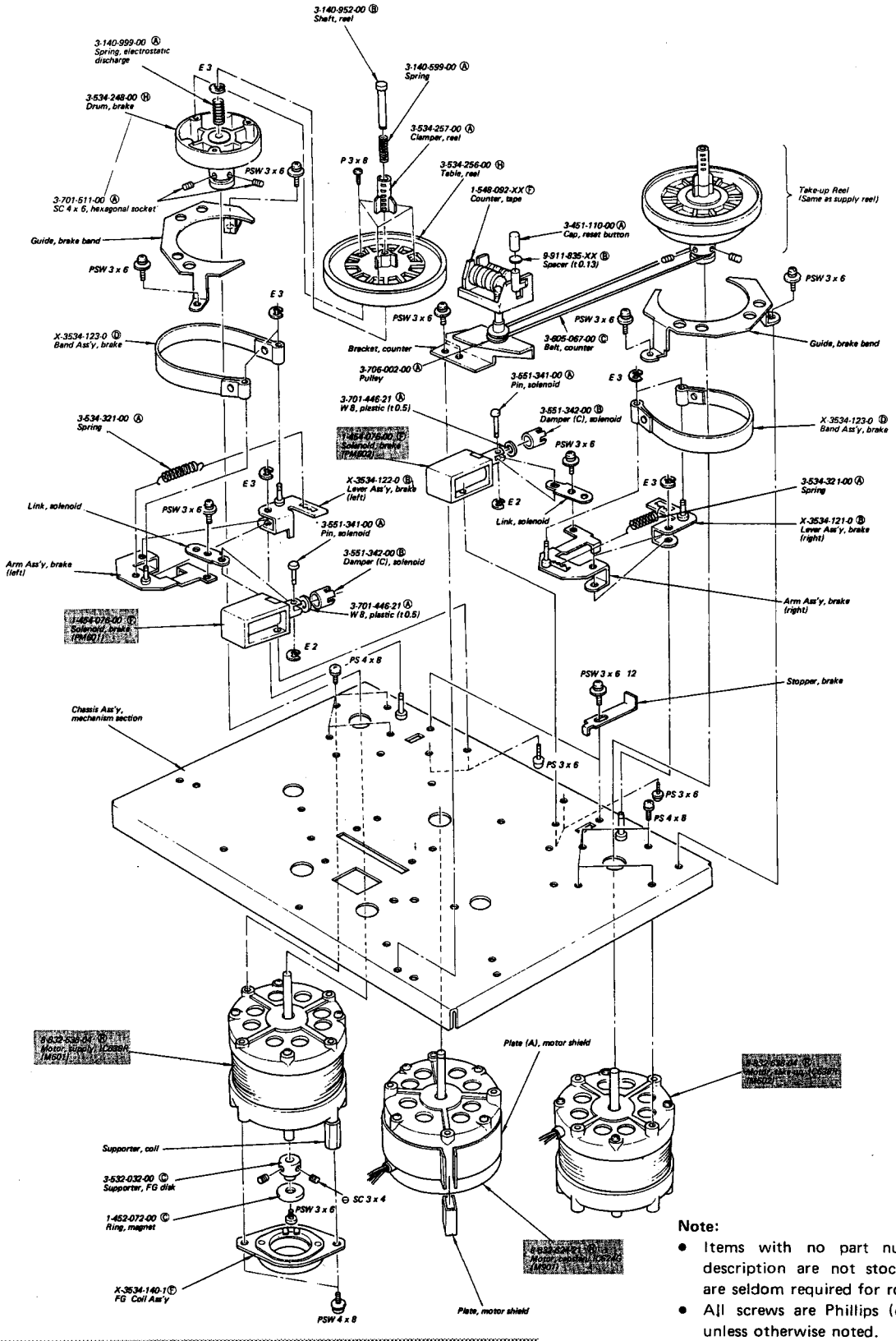


Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

5-8.


3-140-952-00 Ⓑ Shaft, reel
3-140-999-00 Ⓐ Spring, electrostatic discharge
3-140-599-00 Ⓐ Spring
3-534-248-00 Ⓗ Drum, brake
3-534-257-00 Ⓐ Clamper, reel
3-534-256-00 Ⓗ Table, reel
1-548-092-XX Ⓕ Counter, tape
3-701-511-00 Ⓐ SC 4 x 6, hexagonal socket
3-451-110-00 Ⓐ Cap, reset button
9-911-835-XX Ⓑ Spacer (t 0.13)
Take-up Reel (Same as supply reel)
Guide, brake band
PSW 3 x 6
P 3 x 8
E 3
X-3534-123-0 Ⓓ Band Ass'y, brake
Bracket, counter
3-905-067-00 Ⓒ Belt, counter
3-706-002-00 Ⓐ Pulley
3-551-341-00 Ⓐ Pin, solenoid
3-701-446-21 Ⓐ W 8, plastic (t 0.5)
3-551-342-00 Ⓑ Damper (C), solenoid
3-534-321-00 Ⓐ Spring
X-3534-122-0 Ⓑ Lever Ass'y, brake (left)
X-3534-121-0 Ⓑ Lever Ass'y, brake (right)
Link, solenoid
E 2
Arm Ass'y, brake (left)
Arm Ass'y, brake (right)
PS 4 x 8
PSW 3 x 6 12
Stopper, brake
Chassis Ass'y, mechanism section
PS 3 x 6
Supporter, coil
3-532-032-00 Ⓒ Supporter, FG disk
SC 3 x 4
1-452-072-00 Ⓒ Ring, magnet
X-3534-140-1 Ⓕ FG Coil Ass'y
Plate (A), motor shield
Plate, motor shield

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note:

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  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
			PRINTED CIRCUIT BOARD
	1-585-576-00	Ⓑ	Meter
			SEMICONDUCTORS
			Transistors
⇒ Q101–104, ⇒ Q301–304		Ⓑ	2SC1345-E
⇒ Q105,106, ⇒ Q305,306		Ⓑ	2SC634A
⇒ Q108,308		Ⓑ	2SC1345-E
⇒ Q109–114, ⇒ Q309–314		Ⓑ	2SC634A
Q115,315		Ⓑ	2SC1345-E
⇒ Q116,316		Ⓔ	2SK43-13
Q117,317		Ⓑ	2SA705
⇒ Q120,320		Ⓑ	2SC634A
Q121,321, Q122,322		Ⓑ	2SC1345-E
⇒ Q123,323, ⇒ Q124,324		Ⓑ	2SC634A
⇒ Q125,325		Ⓒ	2SC1475
Q126,326		Ⓑ	2SC1345-E (AEP, UK, PX model)
⇒ Q127,327		Ⓒ	2SA678 (AEP, UK, PX model)
Q501		Ⓑ	2SK30A
⇒ Q502,503		Ⓑ	2SC634A
Q504		Ⓒ	2SC1173
⇒ Q505		Ⓒ	2SC1475-13
⇒ Q506–508		Ⓑ	2SC634A
⇒ Q509		Ⓑ	2SC634A (AEP, UK, PX model)
⇒ Q701		Ⓑ	2SC634A
Q702		Ⓓ	2SC1061
⇒ Q703,704		Ⓑ	2SC634A
Q705		Ⓓ	2SC1061
⇒ Q706,707		Ⓑ	2SC634A
Q708		Ⓓ	2SC1061
⇒ Q709		Ⓑ	2SC634A
⇒ Q710		Ⓑ	2SC1364 (blue)
⇒ Q711		Ⓑ	2SC1475-13
⇒ Q712		Ⓑ	2SC1364 (blue)
⇒ Q713		Ⓒ	2SC1475-13
⇒ Q714		Ⓑ	2SC1364 (blue)
⇒ Q715		Ⓒ	2SC1475-13
⇒ Q716–720, ⇒ Q722–735		Ⓑ	2SC634A
⇒ Q736		Ⓖ	2SC867A
⇒ Q737,738		Ⓑ	2SC634A
⇒ Q739		Ⓖ	2SC867A
⇒ Q740–748		Ⓑ	2SC634A
⇒ Q901		Ⓒ	2SA678
⇒ Q902		Ⓑ	2SC634A
Q903		Ⓖ	2SC867A
			ICs
IC701		Ⓚ	CX738
⇒ IC901		Ⓕ	CX065A
			Diodes
⇒ D101,301, ⇒ D102,302		Ⓑ	1S1555
⇒ D103,303		Ⓑ	1T22A
⇒ D501		Ⓑ	EQB01-11Z
⇒ D502–504		Ⓑ	1S1555
⇒ D505		Ⓑ	1S1555 (AEP, UK, PX model)
⇒ D601		Ⓑ	1S1555
⇒ D602,603		Ⓑ	10E2
⇒ D701–705		Ⓑ	10E2
⇒ D706		Ⓑ	EQB01-11Z
⇒ D707		Ⓑ	10E2
⇒ D708–713		Ⓑ	1S1555
⇒ D714		Ⓑ	1T22A
⇒ D715		Ⓑ	1S1555
⇒ D716,717		Ⓑ	10E2
⇒ D718–720, ⇒ D723–743		Ⓑ	1S1555
⇒ D744–747		Ⓑ	10E2

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

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Ref. No.	Part No.		Description
⇒ D748–754		Ⓑ	1S1555
⇒ D755–758		Ⓑ	10E2
⇒ D759–767		Ⓑ	1S1555
⇒ D768		Ⓑ	EQB01-11Z
D769		Ⓑ	1S1555
⇒ D901		Ⓑ	10E2
D904,905		Ⓑ	VD1221
⇒ D906–909		Ⓑ	10E2
Th701,702	1-800-204-00	Ⓑ	Thermistor S-10K

COILS

L101,301	1-407-593-00	Ⓑ	27 mH, microinductor
L102,302	1-407-269-00	Ⓑ	2.2 mH, variable inductor
L103,303	1-407-213-XX	Ⓑ	1.5 mH, microinductor
L104,304	1-407-195-XX	Ⓑ	1.2 mH, microinductor
L106,306	1-407-286-00	Ⓑ	2.2 mH, variable inductor
L107,307	1-407-248-00	Ⓑ	1 mH, variable inductor

TRANSFORMER

PT601	1-442-803-00		Power (US, Canadian model)
	1-442-804-00	Ⓑ	Power (AUS, AEP, PX model)
T101,301	1-427-284-00	Ⓑ	Output

CAPACITORS

All capacitors are in μF and electrolytic unless otherwise noted.
50WV or less are not indicated except for electrolytics tantalum. pF = μμF

C101,301	1-131-193-11	Ⓑ	10	10V	tantalum
C102,302	1-107-131-11	Ⓐ	100p		silvered mica
C103,303	1-121-410-11	Ⓑ	47	25V	
C104,304	1-131-190-11	Ⓑ	22	6.3V	tantalum
C105,305	1-131-236-11	Ⓑ	1	25V	tantalum
C106,306	1-107-073-11	Ⓐ	33p		silvered mica
C107,307	1-131-192-11	Ⓑ	4.7	10V	tantalum
C108,308	1-121-416-11	Ⓑ	100	25V	
C109,309	1-107-131-11	Ⓐ	100p		silvered mica
C110,310	1-107-133-11	Ⓐ	120p		silvered mica
C111,311	1-131-191-11	Ⓑ	47	6.3V	tantalum
C112,312	1-131-207-11	Ⓑ	4.7	25V	tantalum
C113,313	1-121-391-11	Ⓐ	1	50V	
C114,314	1-108-816-12	Ⓑ	0.1		mylar
C116,316	1-131-193-11	Ⓑ	10	10V	tantalum
C117,317	1-121-654-11	Ⓑ	330	25V	
C118,318	1-131-190-11	Ⓑ	22	6.3V	tantalum
C119,319	1-121-805-11	Ⓑ	330	10V	
C120,320	1-131-238-11	Ⓑ	10	25V	tantalum
C121,321	1-108-795-12	Ⓐ	0.0018		mylar
C122,322	1-108-808-12	Ⓐ	0.022		mylar
C123,323	1-108-808-12	Ⓐ	0.022		mylar
C134–126, C324–326	1-108-805-12	Ⓐ	0.012		mylar
C127,327	1-108-804-12	Ⓐ	0.01		mylar
C128,328	1-108-806-12	Ⓐ	0.015		mylar
C129,329	1-107-185-11	Ⓐ	470p		silvered mica
C130,330	1-107-037-11	Ⓐ	82p		silvered mica
C131,331	1-107-163-11	Ⓐ	47p		silvered mica
C132–134, C332–334	1-101-001-11		0.001 (US, Canadian model)		ceramic
C135,335	1-141-010-XX	Ⓑ	Trimmer		
C201,401	1-131-195-11	Ⓑ	33	10V	tantalum
C202,402	1-107-131-11	Ⓐ	100p		silvered mica
C203,403	1-121-410-11	Ⓑ	47	25V	
C204,404	1-107-123-11	Ⓐ	47p		silvered mica
C205,405	1-131-187-11	Ⓑ	100	3.15V	tantalum
C206,406	1-104-052-11	Ⓑ	0.015	125V	polystyrol
C207,407	1-131-238-11	Ⓑ	10	25V	tantalum
C208,408	1-103-765-11	Ⓐ	390p		polystyrol
C209,409	1-121-391-11	Ⓐ	1	50V	
C210,410, C211,411	1-107-135-11	Ⓐ	150p		silvered mica
C212,412	1-131-190-11	Ⓐ	22	6.3V	tantalum
C213,413	1-121-416-11	Ⓑ	100	25V	
C214,414	1-107-102-11	Ⓐ	5p		silvered mica
C215,415	1-131-195-11	Ⓑ	33	10V	tantalum
C216,416	1-108-814-12	Ⓑ	0.068		mylar
C217,417	1-131-208-11	Ⓒ	6.8	25V	tantalum
C218,418	1-107-123-11	Ⓐ	47p		silvered mica
C219,419	1-131-192-11	Ⓑ	4.7	10V	tantalum
C220,420	1-121-398-11	Ⓐ	10	25V	
C221,421	1-121-352-11	Ⓐ	47	10V	

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
C251,451	1-131-197-11	Ⓑ	3.3 16V tantalum (AEP, UK, PX model)
C252,452	1-107-139-11	Ⓐ	220p silvered mica (AEP, UK, PX model)
C253,453	1-131-207-11	Ⓑ	4.7 25V tantalum (AEP, UK, PX model)
C254,454	1-121-416-11	Ⓑ	100 25V
C501	1-121-738-11	Ⓐ	10 50V
C502	1-121-415-11	Ⓑ	100 16V
C503	1-121-480-11	Ⓐ	22 25V
C504	1-121-398-11	Ⓐ	10 25V
C505	1-121-450-11	Ⓐ	2.2 50V
C506	1-129-703-11	Ⓑ	0.0012 630V polyethylene
C507	1-108-804-12	Ⓐ	0.01 mylar
C508–510	1-121-398-11	Ⓐ	10 25V
C511	1-101-001-11	Ⓐ	0.001 ceramic
C512,513	1-101-001-11	Ⓐ	0.001, ceramic (AEP, UK, PX model)
C601	1-108-750-22	Ⓑ	0.015 300V metalized paper (AEP, UK, PX model)
C701–703	1-121-061-11	Ⓒ	1000 50V
C704	1-121-411-11	Ⓑ	47 50V
C705	1-121-409-11	Ⓐ	47 16V
C706	1-121-398-11	Ⓐ	10 25V
C707	1-121-391-11	Ⓐ	1 50V
C708	1-121-057-11	Ⓒ	1000 25V
C709	1-121-415-11	Ⓑ	100 16V
C710	1-121-395-11	Ⓐ	4.7 25V
C711	1-121-450-11	Ⓐ	2.2 50V
C712	1-121-395-11	Ⓐ	4.7 25V
C713	1-121-396-11	Ⓐ	4.7 50V
C714	1-121-487-11	Ⓐ	10 25V
C715	1-108-246-12	Ⓐ	0.047
C716	1-121-480-11	Ⓐ	22 25V
C717	1-121-409-11	Ⓐ	47 16V
C718	1-121-480-11	Ⓐ	22 25V
C719	1-121-395-11	Ⓐ	4.7 25V
C720	1-121-415-11	Ⓑ	100 16V
C721	1-108-246-12	Ⓐ	0.047 mylar
C722–726	1-108-239-12	Ⓐ	0.01 mylar
C727	1-108-234-12	Ⓐ	0.047 mylar
C728	1-108-239-12	Ⓐ	0.01 mylar
C729,730	1-102-110-11	Ⓐ	220p ceramic
C731,732	1-108-244-12	Ⓐ	0.033 mylar
C733	1-123-182-11	Ⓐ	4.7 50V
C734	1-131-205-11	Ⓑ	2.2 25V tantalum
C735	1-121-450-11	Ⓐ	2.2 50V
C736	1-121-398-11	Ⓐ	10 25V
C737	1-121-396-11	Ⓐ	4.7 50V
C738	1-108-961-11	Ⓒ	0.47 200V polyethylene
C739	1-117-100-11	Ⓑ	10 150V metalized paper
C740,741	1-121-395-11	Ⓐ	4.7 25V
C742	1-108-967-11	Ⓒ	0.47 200V polyethylene
C743	1-117-100-11	Ⓑ	10 150V metalized paper
C744	1-121-398-11	Ⓐ	10 25V
C745	1-121-450-11	Ⓐ	2.2 50V
C746	1-121-395-11	Ⓐ	4.7 25V
C747	1-108-239-12	Ⓐ	0.01 mylar
C748	1-102-074-11	Ⓐ	0.001 ceramic
C749	1-121-395-11	Ⓐ	4.7 25V
C750	1-121-398-11	Ⓐ	10 25V
C751	1-121-409-11	Ⓐ	47 16V
C752	1-121-398-11	Ⓐ	10 25V
C753	1-121-986-11	Ⓐ	2.2 50V
C901	1-121-416-11	Ⓑ	100 25V
C902	1-121-398-11	Ⓐ	10 25V
C903	1-129-793-11	Ⓑ	0.047 100V polyethylene
C904	1-108-593-12	Ⓑ	0.039 mylar
C905	1-108-240-12	Ⓐ	0.015 mylar
C906	1-121-450-11	Ⓐ	2.2 50V
C907	1-121-398-11	Ⓐ	10 25V
C908	1-121-961-11	Ⓐ	4.7 25V
C909,910	1-131-211-11	Ⓑ	0.22 35V tantalum
C911	1-121-968-11	Ⓐ	10 16V
C912	1-121-951-11	Ⓐ	0.47 50V
C913	1-121-980-11	Ⓐ	100 6.3V
C914	1-121-961-11	Ⓐ	4.7 25V
C915	1-121-759-11	Ⓑ	4.7 250V
C916	1-130-076-11		500V polyethylene

Note: The components identified by shading are critical for safety. Replace only with part number specified.

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Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description	
			RESISTORS	
			All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for their values.	
R108,308	1-244-871-11	Ⓐ	820	½W
R109,309	1-244-913-11	Ⓐ	47 k	½W
R111,311	1-244-889-11	Ⓐ	4.7 k	½W
R118,318	1-244-861-11	Ⓐ	330	½W
R121,321	1-244-905-11	Ⓐ	22 k	½W
R125,325	1-244-909-11	Ⓐ	33 k	½W
R127,327	1-244-885-11	Ⓐ	3.3 k	½W
R138,338	1-244-873-11	Ⓐ	1 k	½W
R140,340	1-244-897-11	Ⓐ	10 k	½W
R141,341	1-244-875-11	Ⓐ	1.2 k	½W
R146,346	1-217-401-11		150	¼W fusible (US, Canadian model)
R170,370	1-244-857-11	Ⓐ	220	½W
R201,401	1-244-912-11	Ⓐ	43 k	½W
R206,406	1-244-853-11	Ⓐ	150	½W
R210,410 R212,412	1-244-885-11	Ⓐ	3.3 k	½W
R213,413	1-244-927-11	Ⓐ	180 k	½W
R214,414	1-244-883-11	Ⓐ	2.7 k	½W
R231,431 R232,432	1-244-889-11	Ⓐ	4.7 k	½W
R234,434	1-244-859-11	Ⓐ	270	½W
R235,435	1-244-905-11	Ⓐ	22 k	½W
R241,441	1-244-885-11	Ⓐ	3.3 k	½W
R255,455	1-244-871-11	Ⓐ	820	½W
R501	1-217-387-11	Ⓑ	10	¼W fusible
R505,506	1-244-897-11	Ⓐ	10	½W
R517	1-217-382-11		3.9	¼W fusible (US, Canadian model)

[redacted]

Ref. No.	Part No.		Description	
[redacted]				
R793	1-244-867-11	Ⓐ	560	½W
R794	1-244-875-11	Ⓐ	1.2 k	½W
[redacted]				
R809	1-244-875-11	Ⓐ	1.2 k	½W
[redacted]				
R901	1-244-865-11	Ⓐ	470	½W
R903	1-212-626-11	Ⓑ	33 k	¼W metal oxide
R904	1-212-634-11	Ⓑ	68 k	¼W metal oxide
R915	1-217-375-11	Ⓑ	1	¼W fusible
R916	1-206-713-11	Ⓑ	330	3W metal oxide
RV101,301 RV102,302	1-224-962-00	Ⓕ	20 k, variable; MIC, LINE	
RV103,303 RV104,304	1-224-646-XX	Ⓑ	22 k, adjustable	
RV105,305	1-224-448-00	Ⓔ	10 k, variable; PB LEVEL	
RV106,306	1-224-643-XX	Ⓑ	2.2 k, adjustable	
RV701	1-224-645-XX	Ⓑ	10 k, adjustable	
RV702,703	1-224-643-XX	Ⓑ	2.2 k, adjustable	
RV901	1-224-493-00	Ⓑ	10 k, adjustable	
RV902	1-224-491-00	Ⓑ	22 k, adjustable	
			SWITCHES	
S101,301	1-552-073-00	Ⓕ	Rotary, MIC ATT	
S102,302	1-552-074-00	Ⓗ	Rotary, EQ	
S103,303	1-552-075-00	Ⓔ	Pushbutton, REC MODE	
S104,304	1-552-077-00	Ⓓ	Lever Slide, MONITOR	
S106,306	1-516-778-XX	Ⓒ	Slide, INPUT SELECT AEP, UK, PX model)	
S501	1-552-073-00	Ⓕ	Rotary, BIAS	
S601–603	1-552-072-00	Ⓕ	Rotary-slide, REEL SIZE, TAPE SPEED, TIMER	
[redacted]				
S605,606	1-516-028-XX	Ⓕ	Micro, shut-off	
S607	1-514-524-00	Ⓑ	Slide, REC MONITOR MUTE	

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description	
			JACKS	
J101,301	1-507-455-00	Ⓒ	MIC	
J102,302 J103,303	1-507-433-00	Ⓒ	4p, phone; LINE IN, LINE OUT	
J501	1-507-454-00	Ⓒ	HEADPHONES	
			FUSES	
[redacted]				
			MISCELLANEOUS	
CN501	1-509-549-00	Ⓑ	Connector, REC/PB (AEP, UK, PX model)	
CN601	1-507-255-00	Ⓑ	Socket, 11-p; REMOTE CONTROL	
[redacted]				
HE101,301	8-825-547-00	Ⓔ	Head, erase FF18-2902A2	
⇒HP101,301	8-825-534-20	Ⓛ	Head, playback PF140-2202D	
HR101,301	8-825-511-00	Ⓛ	Head, record RF140-2902	

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No.	Part No.		Description	
[redacted]				
ME101,301	1-520-285-00	Ⓜ	Meter, VU	
PL101,301 PL601–605	1-518-278-21	Ⓑ	Lamp, 6V 35 mA PL101,301: REC MODE PL601–605: pilot	
[redacted]				
RY501,502	1-515-267-00	Ⓕ	Reed Relay	
RY503	1-515-267-00	Ⓕ	Reed Relay (AEP, UK, PX model)	
[redacted]				
	1-452-072-00	Ⓒ	Ring, magnet	
	1-464-029-00	Ⓖ	OSC Unit	
[redacted]				
	1-533-125-00	Ⓒ	Holder, fuse 5-p (AEP, UK, PX model)	
	1-533-131-00		Holder, fuse (US, Canadian model)	
[redacted]				

Note: The components identified by shading are critical for safety. Replace only with part number specified.

SONY-00527 / DRUCK 26

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

ACCESSORIES & PACKING MATERIALS

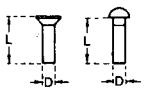
Part No.		*Description*
A-2500-027-A		RM-30 (US, Canadian, PX model)
X-3552-801-0		Carton Ass'y (US model)
X-3552-802-0	Ⓚ	Carton Ass'y (Canadian, AEP, UK model)
X-3552-803-0		Carton Ass'y (PX model)
1-526-565-00		Adaptor, AC plug (PX model)
1-534-049-31	Ⓕ	Cord, connection; RK-74H
1-534-754-00		Cord, power (PX model)
1-534-819-00	Ⓖ	Cord, power 3p (UK model)
3-401-193-00		Ribbon, head cleaning (US model)
3-534-322-00	Ⓐ	Cushion, reel table
3-534-327-00	Ⓒ	Case, reel
3-541-496-00	Ⓓ	Bag, protection
3-542-008-00	Ⓒ	Tips, head cleaning
3-542-101-00	Ⓑ	Adaptor, reel
3-551-428-00	Ⓑ	Cover, sheet
3-551-428-00	Ⓑ	Cushion, lower
3-551-430-00	Ⓓ	Cushion upper
3-552-909-00		Carton, RM-30 (PX, US, Canadian model)
3-701-628-00		Bag, plastic; RM-30 (US, Canadian, PX model)
3-701-632-11	Ⓘ	Manual, instruction (AEP, UK model)
3-770-226-21		Manual, instruction (US model)
3-770-226-31		Manual, instruction (Canadian model)
3-770-226-61		Manual, instruction (PX model)

Note: The components identified by shading are critical for safety. Replace only with part number specified.

HARDWARE NOMENCLATURE

Screw:

P 3 x 10
- *L: Length in mm*
- *D: Diameter in mm*
- *Type of head*
- *Indicated slotted-head only. Unless otherwise indicated, it means cross-recessed head (Phillips type).*



Nut, Washer, Retaining ring:

N 3
- *Diameter of usable screw or shaft*
- *Reference designation*

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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9-954-538-01
(with RM-30)

81D0603-5
Printed in Japan

STEREO TAPE DECK

TC-765

UK Model
AEP Model
US Model
Canadian Model
PX Model

SUPPLEMENT

File this supplement with the service manual.

Subject: Circuit Description

No. 1
November, 1977

The system control circuits of this tape recorder are activated by pushing the Feather-Touch operation buttons and control three kinds of movement for four solenoids along with the voltage applied to the operating lamps and the reel motor.

Circuit descriptions are listed in the following order.

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SONY®
SERVICE MANUAL

1. Action of IC701 (CX738) (Refer to Fig. 1)

Pushing any of the function buttons grounds the actuating circuit of IC701 (terminals ⑨ to ⑬) and the output from terminals ② to ⑦ controls each mode. (Output occurs when terminals ⑨ to ⑬ are at less than 4.5 V.)

Fig. 1 indicates the output in each mode by a logic value.

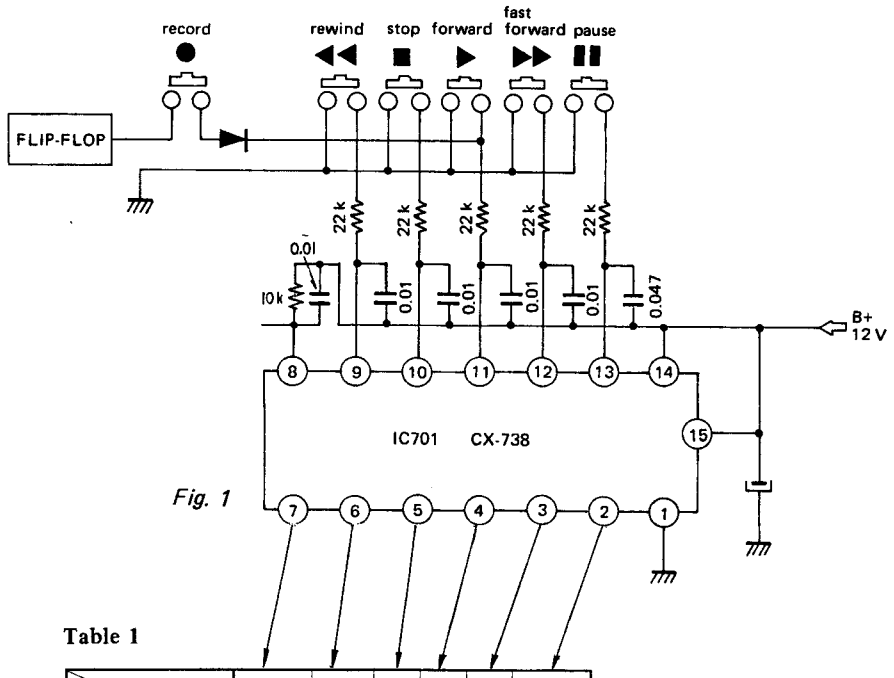

Fig. 1

Table 1

Mode \ Output	Brake	▶D*1	▶	◀◀	▶▶	II	
STOP	0	0	0	0	0	0	
Forward	1 or 0	1	1	0	0	HOLD	*2
Fast Forward	1	0	0	0	1	HOLD	
Rewind	1	0	0	1	0	HOLD	
Forward/PAUSE	1	1	1	1	0	0	*3
	1					1	

0: 0V output
1: 12V output
HOLD: Previous mode condition does not change.

*1. ▶D represents DELAY Forward.
*2. If PAUSE is 0 (previous condition), Brake becomes 1.
If PAUSE is 1 (previous condition), Brake becomes 0.
*3. In Forward mode, if PAUSE button is pressed, the solenoid is de-energized and the brake is operated.

2. Action when switched from Fast Forward (▶▶) or Rewind (◀◀) to Forward (▶). (Refer to Fig. 2)

- Action of IC701

⑪▶ (Input) ——→ ⑤▶ (Output)--→lamp lights
DEL D
⑧▶ (Input: ON)→⑥▶(Output)--→tape transport

1. When switched from fast forward or rewind to forward, the output of terminal ⑤, determined by the input of terminal ⑪, puts Q719 in the ON state and the forward lamp lights.
2. Also, since the supply reel motor has been revolving at high speed, it does not stop immediately and there is an output from FG.
3. Q748 is negative-biased by the output from FG, so that it is in the OFF condition, B+ voltage is applied to terminal ⑧ and there is no output from terminal ⑥(Path).
4. The revolution of the supply reel motor quickly slows down and stops. When this happens, the output from FG becomes zero, Q748 returns to the ON state. Terminal ⑧is grounded and terminal ⑥ outputs the control signal and forward motion starts.
(Once in forward, there will be no influence from terminal ⑧ until again switching to fast forward or rewind.)

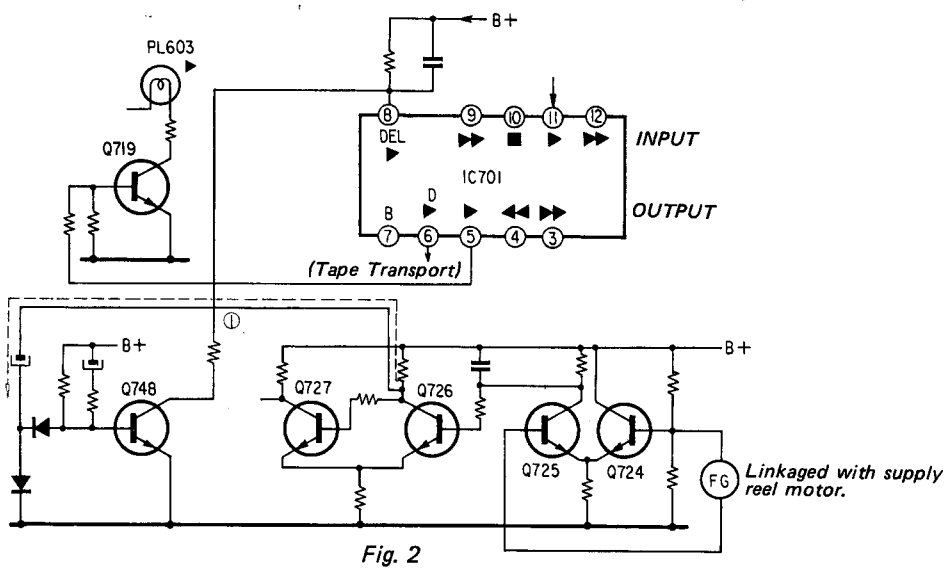

Fig. 2

3. Power Supply Section (Refer to Fig. 3)

The power supply section consists of the following four kinds of circuits.

1. Power supply (12V) for lamps, IC701, and solenoid hold.
2. Regulated power supply (24V) for record and playback amplifiers.
3. Regulated power supply (24V: adjustment required) for headphone amplifier, bias oscillator, and system control section.
4. Power supply for solenoid initial-energization.

(There is a regulator in the audio amplifier section.)

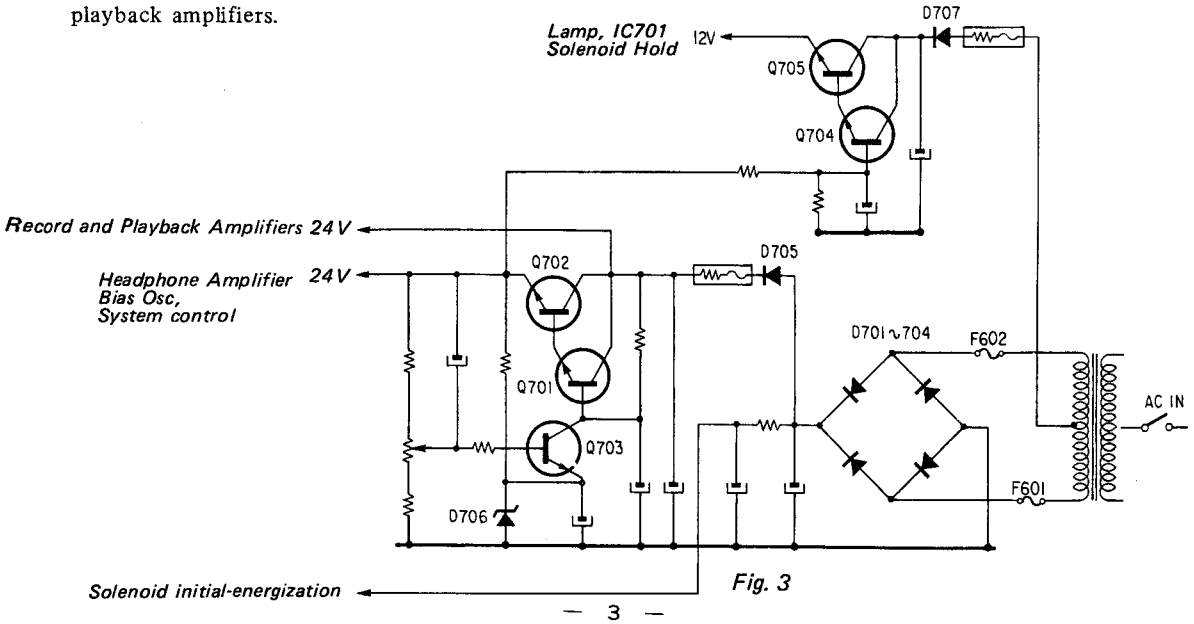

Fig. 3

4. High Voltage Power Supply for Solenoid Initial-Energization (Refer to Fig. 4)

The solenoids need a high voltage during pulling, but a low voltage is adequate for hold.

1. When stopped or during tape transport, Q706 is ON and Q707, 708 are in the OFF state providing a 12V power supply for solenoid hold.
2. In the hold condition, as the signal PAUSE (H) enters point Ⓐ from IC701, Q718 goes to the ON state and the (+) side of C710 at +24V suddenly drops to zero potential so that the (-) side (point Ⓒ) becomes -24V. Then the signal passes through R712 and D708 where it is discharged at a time constant of R712 x C710.
3. Though Q706 was ON, as the PAUSE signal enters point Ⓐ, point Ⓒ becomes -24V which creates an OFF state. As a result, Q707, 708 are in the ON state and provide a high voltage power supply for solenoid initial-energization.
   (In this case, turning on playback muting. Refer to page 11.)
4. When C710 has completed discharging, Q706 goes to the ON state and Q707, 708 go to OFF. The solenoid power supply returns to +12V for hold use.

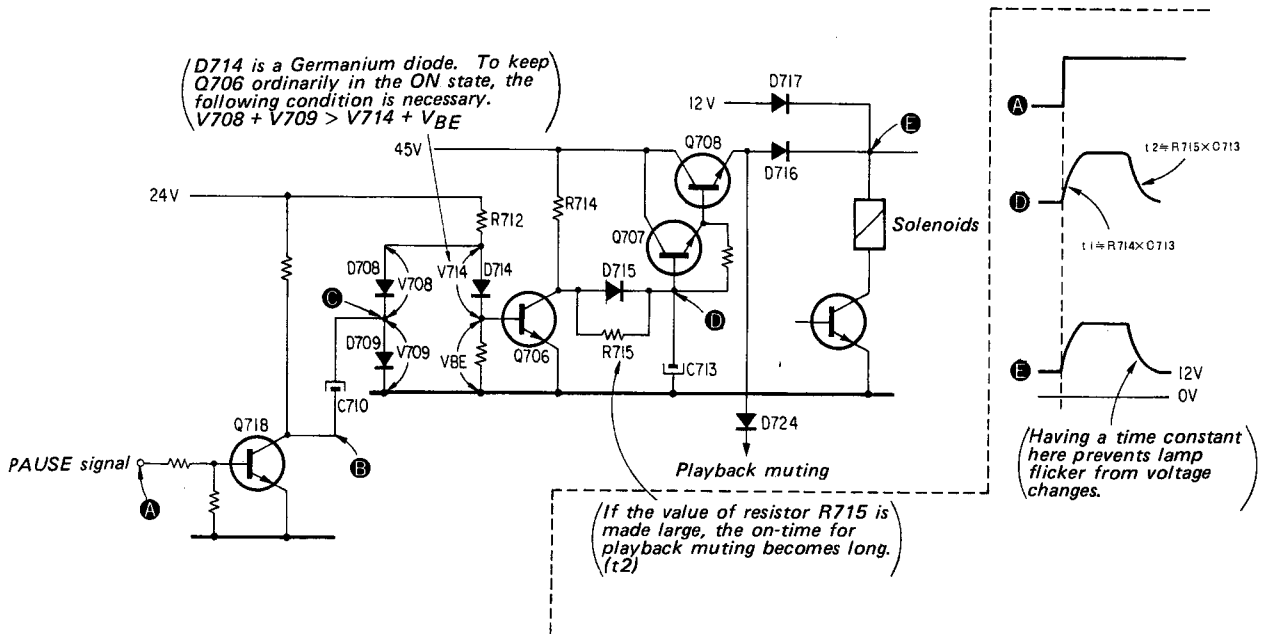

Fig. 4

5. Reel Motor Starting Circuit (Refer to Fig. 5)

When switching from STOP to forward or from PAUSE to forward the Reel Motor (M601, 602) cannot start up right away. (Especially true when using a 10-inch reel.)

For this reason, the torque of the Reel Motor (M601, 602) is greater at starting than during running.

1. With the IC701 output ▶D, Q712 (for solenoid drive) goes ON and C740 causes Q737 to go OFF for an instant. (The operation is the same as the solenoid initial-energizing.)
2. When Q737 goes OFF, Q733 goes ON and the signal passes through R794 and D742 to add to Q736. This permits Q736 saturation and about 50V is applied to the supply reel motor (M601) for starting it. (Path ①)
3. For the take-up reel motor (M602), as Q737 turns OFF, Q738 turns ON and energizes relay (RY702) which supplies 70V from the power transformer for motor starting. (Path ②)
4. When discharge at the time constant determined by R803 and C740 is finished, Q737 returns to the ON state and Q738 turns OFF releasing the relay (RY702).
5. Q733 gradually goes OFF at the time constant determined by R792 and C735. Afterwards, the supply reel motor (M601) changes to tension-regulator operation and the take-up reel motor (M602) becomes constant-torque operation.
6. D753 grounds Q739 base bias supplied through Q733, R793 and D743 to prevent short-circuiting of the 70V and 50V of the power transformer through Q739 and the diode bridge during starting of the take-up reel motor. The reason for Q733 having a time constant prevents tension arm vibration caused by voltage variation when the starting operation changes to the running operation.

6. Tension Regulator Circuit

If motor torque is uniformly constant, the back tension torque of tape transport becomes stronger as tape winding diameter becomes smaller. This causes variations in the tape speed, tape-to-head contact, level and frequency characteristics.

Hence, in order to keep tape tension constant, even when tape winding diameter changes, a tension regulator circuit (including a mechanical tension regulator) is employed to control the torque of the supply reel motor.

1. Since the tape speed is constant in the forward mode, as the amount of tape on the supply reel decreases, the revolution speed of the supply reel (frequency of FG) increases. In other words, FG generates the signal of frequency in inverse proportion to the radius of the remaining tape.
2. By rectifying the signal, dc voltage in inverse proportion to the radius of the remaining tape is obtained.
3. If the supply reel motor torque is constant, tape tension at the supply reel exit will be in inverse proportion to the tape amount. In other words, to maintain constant tape tension a motor torque which is proportional to the tape amount is the best.
4. Hence, by using the dc voltage obtained in 2., constant tape tension is achieved.

(Please refer to the next page for tension set-up and circuit operation.)

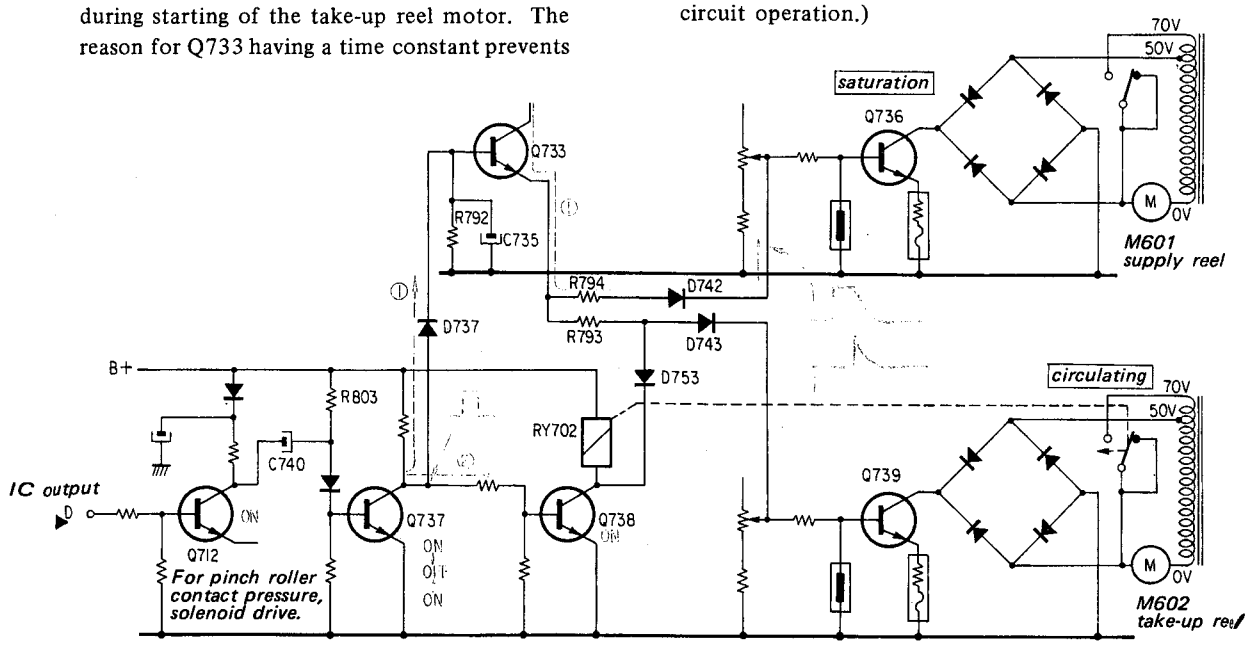

Fig. 5

7. Tape Tension Set-up and Circuit Operation

(Refer to Figs. 6, 7)

In order to make tape tension constant, torque at the start of tape winding (slow revolution) must be increased and torque near the end of tape winding (fast revolution) must be decreased.

1. At a slow revolution speed, the pulse interval is long so that the dc voltage output ❾ becomes high; hence supply reel motor torque becomes large.
2. At a fast revolution speed, the pulse interval is short so that the DC voltage output becomes low making the supply reel motor torque small.
3. Even if the tape speed is varied, if the radius of the remaining tape is the same, the back tension has to be the same. Therefore, when changing from 9.5 cm (3¾ ips) to 19 cm/s (7½ ips) with switch (S602-1), Q730 is turned ON and half cycle of the input signal to switching transistor (Q731) is turned OFF to produce the specified torque.

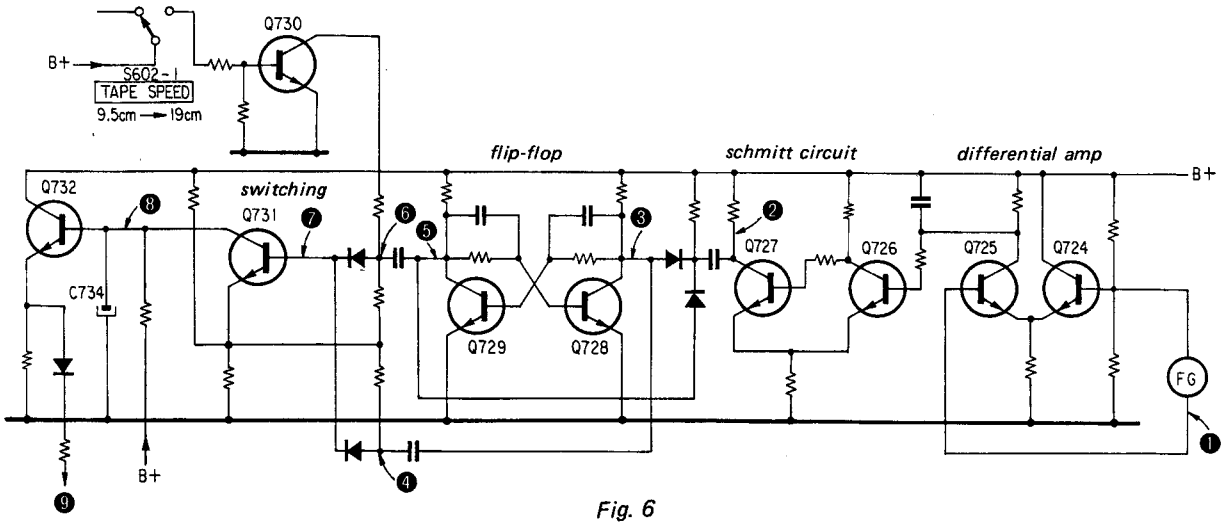

Fig. 6

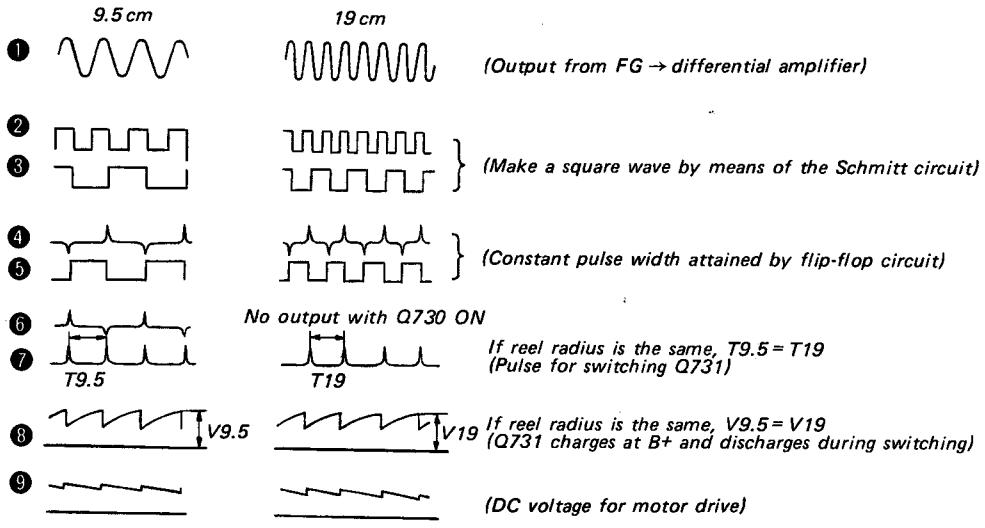
9.5cm
19cm
(Output from FG → differential amplifier)
(Make a square wave by means of the Schmitt circuit)
(Constant pulse width attained by flip-flop circuit)
No output with Q730 ON
If reel radius is the same, T9.5 = T19
(Pulse for switching Q731)
T9.5
T19
V9.5
V19
If reel radius is the same, V9.5 = V19
(Q731 charges at B+ and discharges during switching)
(DC voltage for motor drive)

Fig. 7

8. Mechanical Tension Regulator

(Refer to Figs. 8, 9)
(Tension value at the tension arm part.)

In tape transport, the tension arm mechanically regulates the tape tension. In this section the tension arm is explained.

1. As the radius of the tape amount on the supply reel changes, also changes resulting in tension value variation.
   (The tension arm itself moves, but this is not considered in this explanation. Also, the tape contact at the tape guide is constant meaning no change in the tension value.)
2. The relationship between the tension value (TA) at the entry point of the tension arm and the back tension (TB) is as shown in Fig. 9. Thus from the end of a 7-inch reel tape to the start of a 10-inch reel tape the mechanical tension will be about 1.3 (experimental value) times the variation that occurs.
3. If such mechanical tension is used, a tension relative to the radius of the tape amount is obtained and the tape tension is regulated. With only this change, however, back tension will not be sufficient.

That is why this tape recorder uses both a tension regulator circuit and a mechanical tension regulator to produce the proper constant back tension.

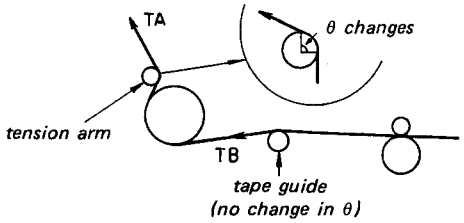

Fig. 8

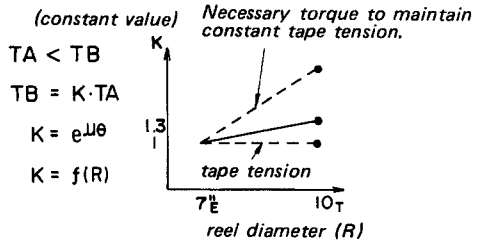

Fig. 9

9. Reel Motor Drive Circuit

(Refer to Figs. 10, 11)

The take-up reel motor operates under constant torque and the supply reel motor is controlled by a tension regulator circuit. Reel motors are driven in the following way.

1. As the base current of the drive transistor is changed, the impedance between the collector and the emitter varies and the voltage supplied to the motor varies to change the motor torque. By utilizing this relationship, the motor torque can be controlled. (Refer to Fig. 10)
2. The characteristics of this drive transistor are indicated in Fig. 11. The variation of collector current I_C relative to collector-emitter voltage V_{CE} is not sinusoidal, but produces a square wave that causes unnecessary vibration in the motor.
3. Therefore, a bridge rectifier circuit is used to supply full-wave-rectified current to the base of the drive transistor and raise base current I_B making collector current I_C closer to a sine wave to drive the motor.

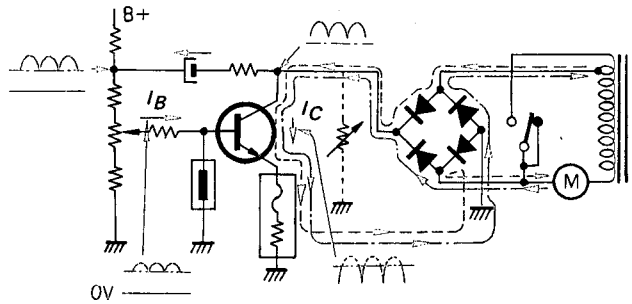

Fig. 10

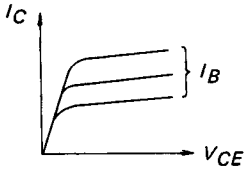

Fig. 11

10. Back Tension Set-up in Rewind Mode

(Refer to Fig. 12)

When adjusting (RV703) and setting up forward take-up tension, rewind back tension is automatically decided. (fixed)

In addition, as determined by reel size, the switching of impedance (R) as seen from the drive transistor (Q739) side takes place.

1. The set-up of R for each mode is shown in Table 2.

Table 2

S601	FWD	REW
10½	∞	R603//(R604 + R605)
7	R605	R603//R605

2. The values for R603, 604 and 605 are determined to obtain the desired rewind back tension in the situation where the forward take-up tension is adjusted (RV703).

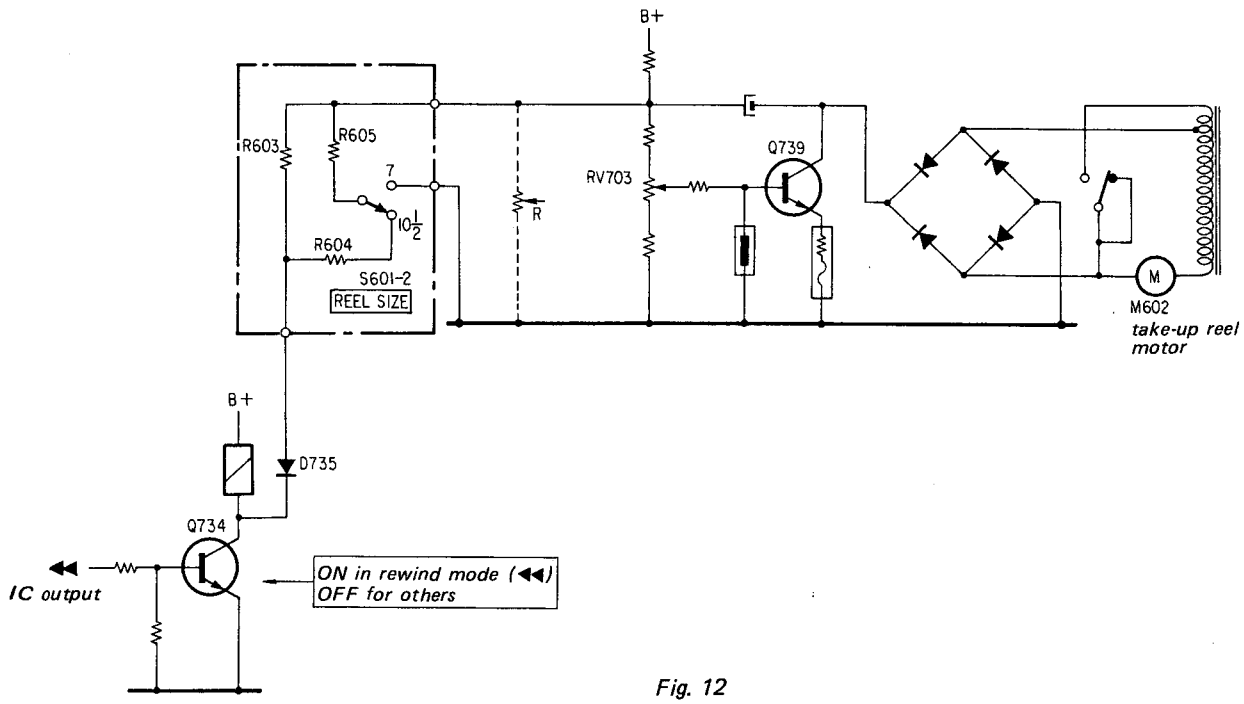

Fig. 12

11. Back Tension Set-up in the Fast Forward Mode
(Refer to Fig. 13)

When adjusting (RV702) and setting up the forward back tension, the fast forward back tension is automatically decided. (fixed)

1. The fast forward (▶▶) output from IC701 passes through D740 and R791 and is added to the base of Q735. (path ①)
   - Q735 base voltage becomes

$$\left[\begin{array}{c}\text{IC Output}\\(\blacktriangleright\blacktriangleright)\\\text{about 12V}\end{array}\right] \times \frac{\text{R601 (R602)}}{\text{R791} + \text{R601 (R602)}} \text{ (V).}$$

   ( ): For 7-inch reel.
2. In addition, this output is passed through R601 (R602) connected to REEL SIZE selecting switch (S601-1) and then grounded through D734 and Q720. (Path ②)
3. The values for R791, R601 and R602 are determined to obtain the desired fast forward back tension in the situation where the forward back tension is adjusted.

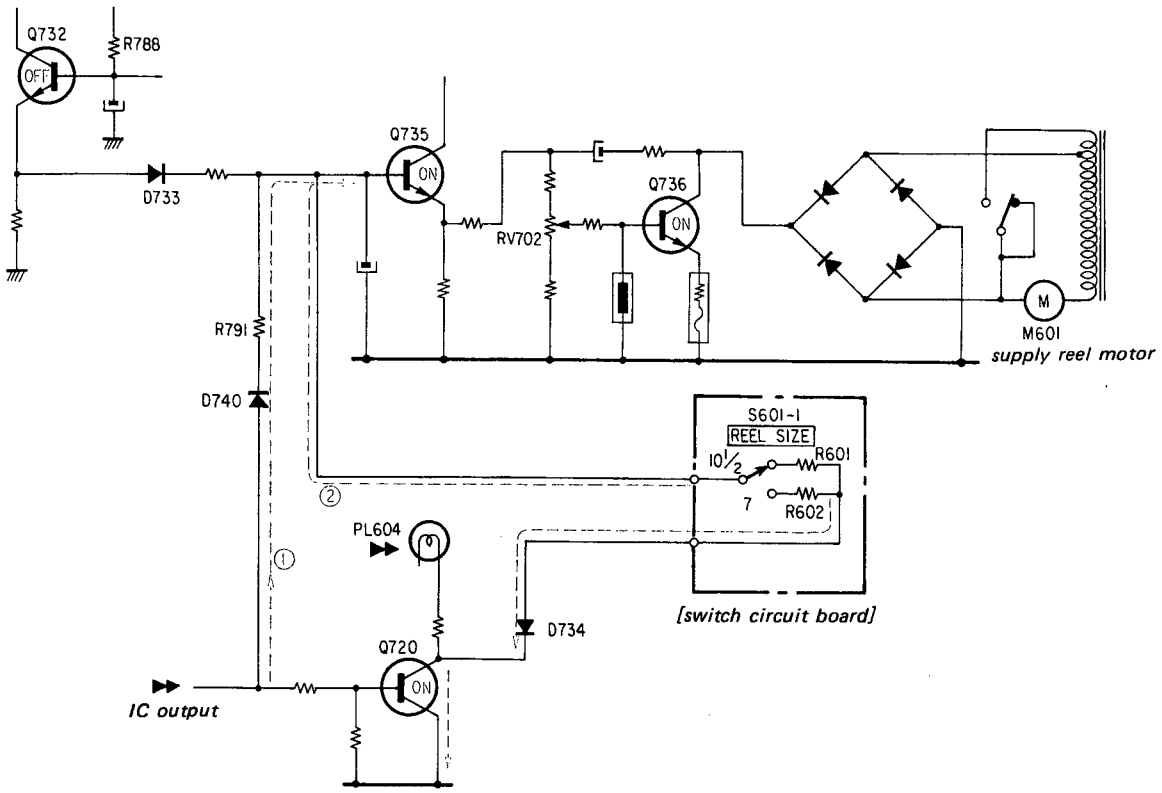

Fig. 13

12. STOP Circuit (Refer to Fig. 14)
(Shut-Off Circuit)

1. When the tape has finished winding, or when slack, tension arm micro-switch (S605, 606) is closed adding 24V to Q723 through R756. (Path ①)
2. Because of this, Q723 is turned ON activating the IC701 input.
3. When AC is ON, Q722 slowly goes to the ON state as determined by time constant of R751 and C717. (Refer to TIMER-activated operation)
   To supplement this, while Q722 is OFF, Q723 is ON and the STOP input of IC701 is activated. (Path ②)

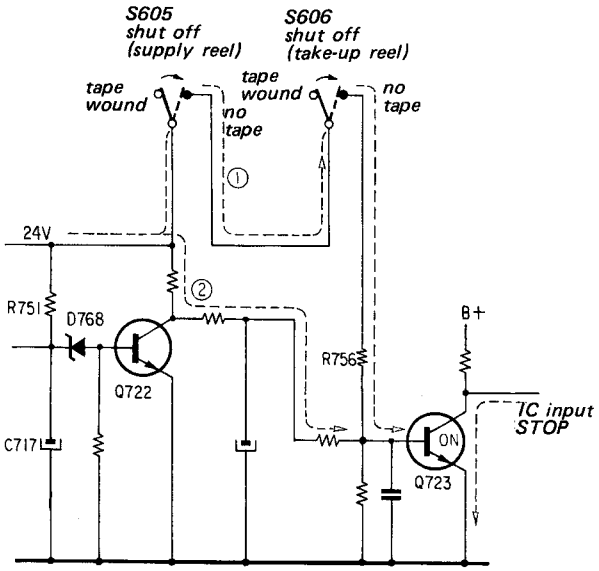

Fig. 14

13. TIMER-Activated Operation (Refer to Fig. 15)

1. With TIMER switch (S603) ON, when the POWER switch (S604) is turned on, the voltage at point Ⓐ supplied through D726 and B+ voltage (+24V) rise after 0.2 to 0.5 seconds.
2. At this time, C717 is charged through R751 and the charged voltage turns on zener diode D768 after 5 seconds determined by a time constant of R751 and C717, and then turns on Q722.
3. As a result of 2., the (+) side of C719 becomes −5 to −6V and passing through S603, D766 and 767 are turned ON to produce the record and forward signals for the Record or Playback modes.

(The circuit containing D726, 727, C716 and R750 makes C717 quickly discharged, when the power supply is turned off.)

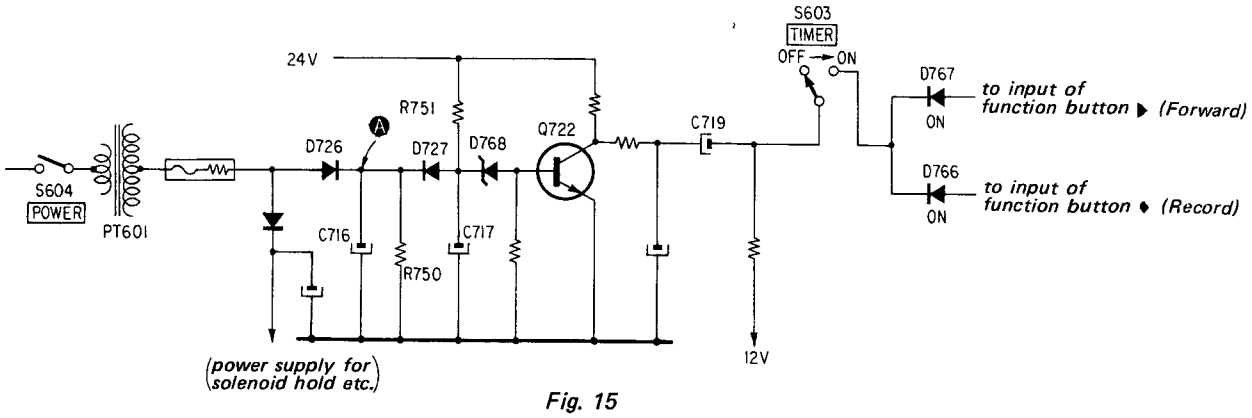

Fig. 15

14. Playback Muting (Refer to Fig. 16)

During the solenoid initial-energization period, playback muting is operated for click sound prevention, but depending on the switching mode, the muting time is changed. (Path ①)

(According to time constant of R712 and C710–712 on the solenoid initial-energization circuit.)

forward (▶)⟶ PAUSE (⏸) : about 0.4 seconds
STOP (■)⟶ forward (▶) : about 0.2 seconds
PAUSE (⏸)⟶ forward (▶) : about 0.2 seconds

Muting time at the switching period from forward mode to PAUSE mode is longer than other switching period. This is to prevent noise caused by slight movement of tape when tension arm moves at the time just changed into PAUSE mode.

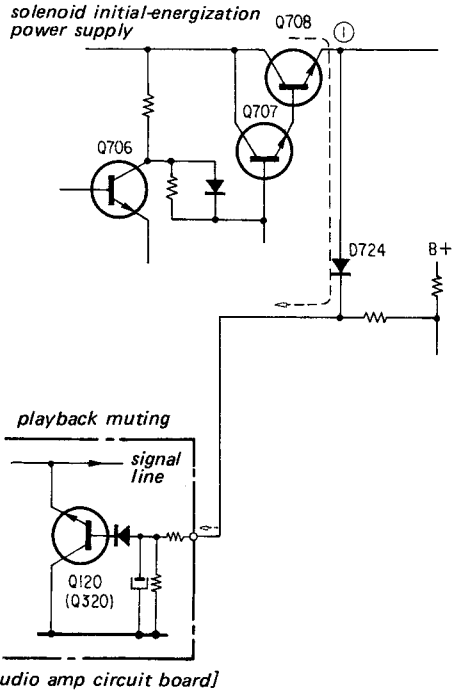

Fig. 16

15. Record Muting (Refer to Fig. 17)

Record muting is operated by turning Q106 (Q306) of the audio amp circuit ON.

1. In playback mode, the record mode switch S103 (S303) adds B+ to Q103 (Q303) turning it ON and record muting is operated. (Path ①)
2. In the situation where the Record and Forward buttons are not pressed, with the REC MODE switch set to the record position, Q744 of the flip-flop circuit is OFF and B+ through D759 turns ON Q741, which turns ON Q106 (Q306) to activate record muting. (Path ②)
3. When the record and forward buttons are pressed and remote control RM-30 is used, when record muting switch is ON, B+ turns ON Q741 through D760, which turns ON Q106 (Q306) to activate record muting. (Path ③)

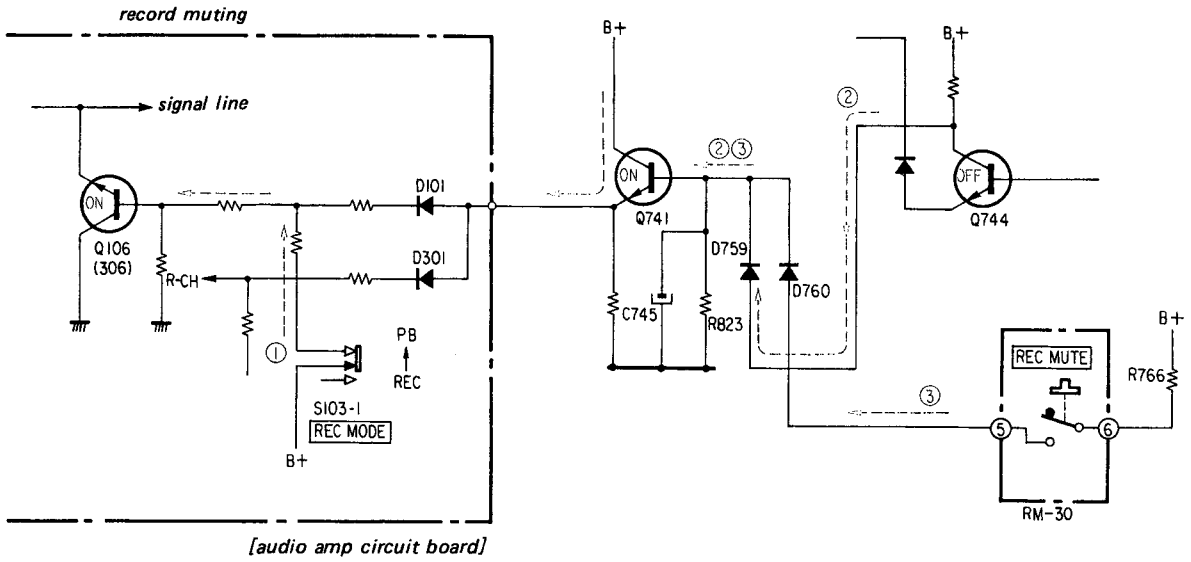

Fig. 17

16. REC MONITOR MUTE Circuit
(Refer to Fig. 18)
(ON and OFF for LINE OUT)

The REC MONITOR MUTE switch (S607), located on the rear panel, is turned ON to prevent howling during recording.

1. This circuit, by turning OFF Q507 of the Audio Amp section, cuts off the LINE OUT signal.
2. During ordinary operation, Q740 is OFF because Q722 is ON.
3. With the REC MONITOR MUTE switch (S607) set to the OFF position, B+ turns ON Q507 through S607, which activates relay (RY501) and the LINE OUT signal comes out. (Path ①)
4. Also, in playback (Q744 is OFF) mode, B+ goes through the TAPE side of the MONITOR switch (S104-2) to turn ON Q507 and the LINE OUT signal comes out. (Path ②)
(When S104-2 is set to the SOURCE position, or when in record mode Q744 turns ON not to supply B+, this circuit is cut off.)
5. With S607 ON, the signal comes out from LINE OUT only when the MONITOR switch is set to the TAPE position in playback mode.

With the MONITOR switch set to TAPE position, when POWER switch is turned ON, LINE OUT signal is muted to prevent a click noise. That is because Q722 is not turned ON for the period determined by the time constant of the Q722 base circuit. In this period Q740 turns ON and accordingly Q507 turns OFF to cut off LINE OUT circuit. Since Q744 also turns OFF, B+ voltage through MONITOR switch S104-2 coming from Q744 collector is ground through D769 and Q740 to prevent B+ from applying to the Q507 base. (Path ③)

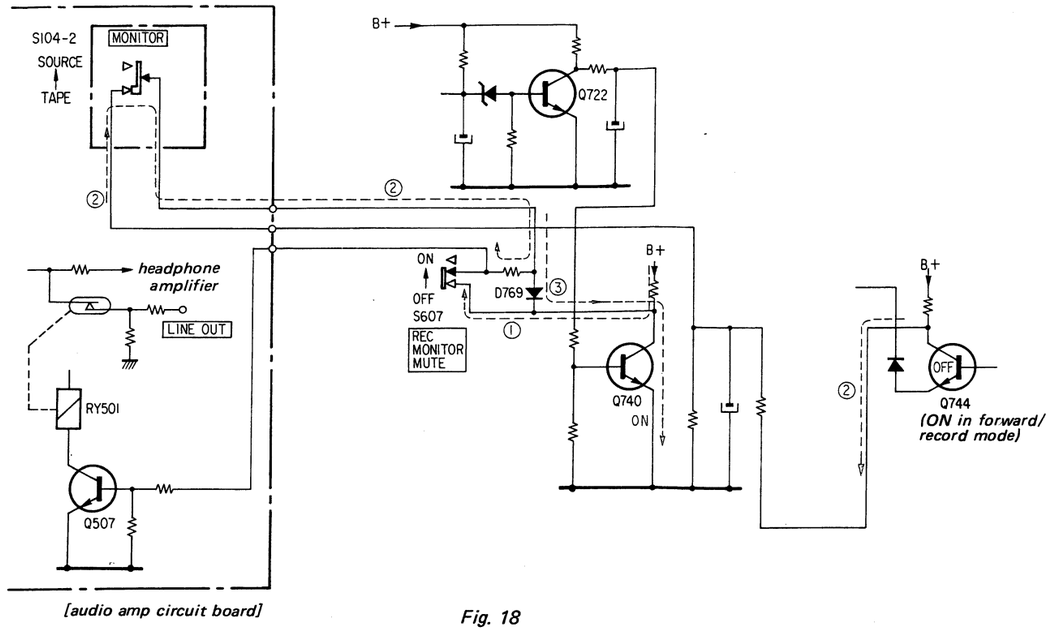

Fig. 18

17. Power Supply for Record Bias Oscillator
(Refer to Fig. 19)

1. When the REC MODE switch (S103-1 or S303-1) is set to REC position, B+ is supplied to the bias oscillator circuit. (Path ①)
2. By pushing the record (●) and forward (▶) buttons, the base of Q745 is grounded. (Path ②)
3. In FWD mode, Q719 turns ON and the emitter of Q744 is grounded. (Path ③)
4. By 3., the flip-flop circuit consisting of Q744, 745 becomes ON for Q744 and OFF for Q745.
5. The non-stable multivibrator circuit, consisting of Q746, 747, repeatedly turns ON and OFF the REC lamp (PL601) due to the difference in collector load resistance.
6. With Q744 in the ON state, the Q747 base is grounded through D762, Q744, D761 and Q719. Q747 turns OFF and Q746 ON in the stable condition and the lamp stops turning on and off and lights up continuously. (Paths ④ and ⑤)
7. With Q744 in the ON state, Q741 goes to OFF and REC muting is released.
8. In forward operation, Q743 turns ON and Q744 ON, Q742 turns OFF, which supplies B+ to the bias oscillator circuit and the bias oscillator circuit operates. (Path ⑥)

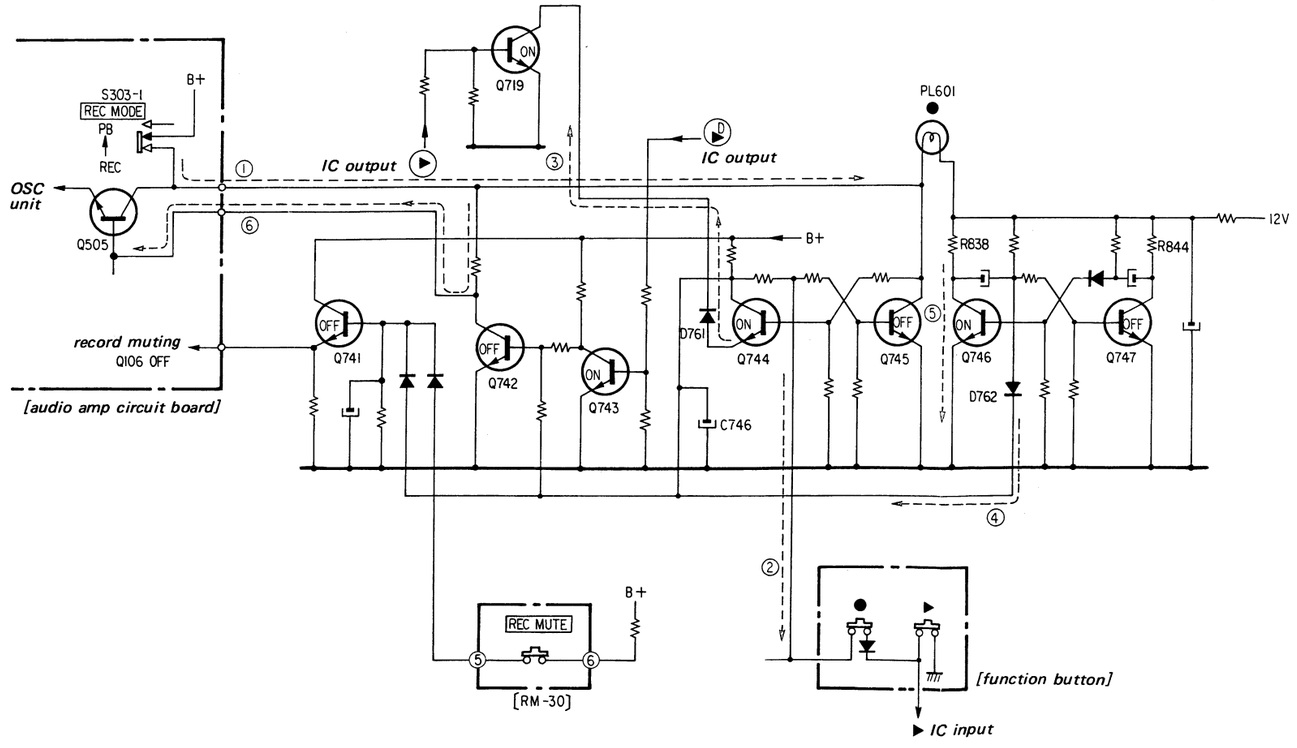

Fig. 19

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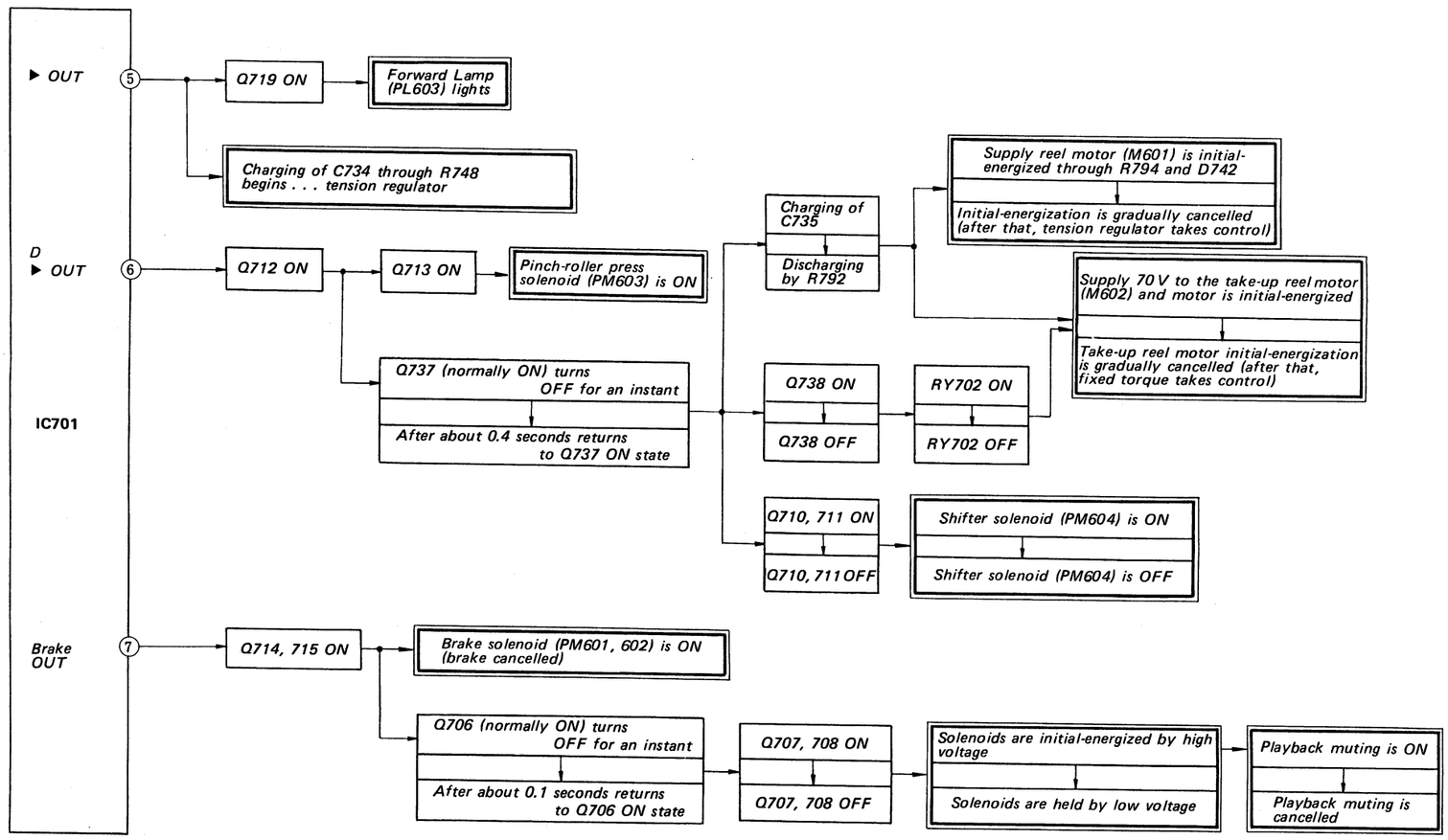
18. Function Button Action Flow Chart

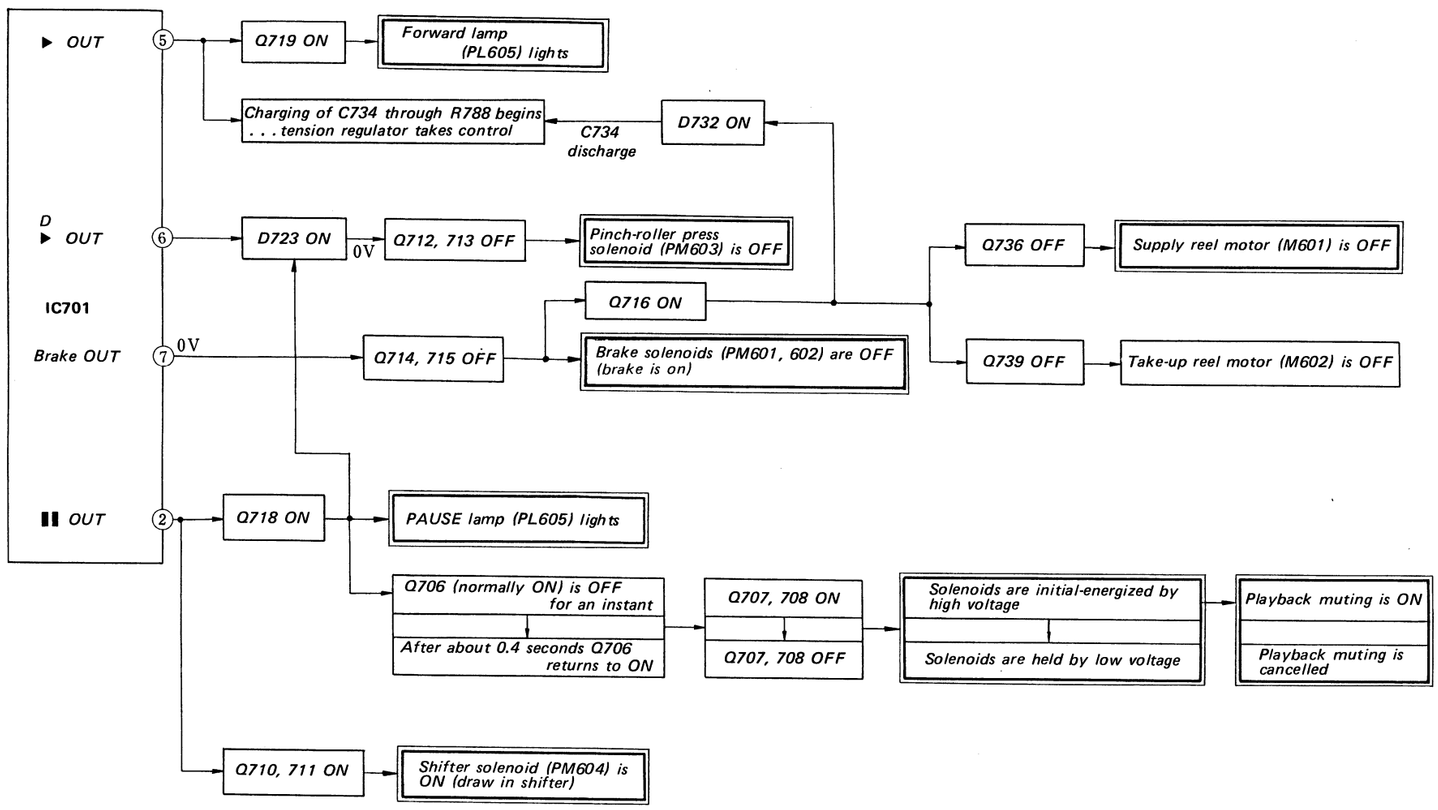
[Function Button Action Flow Chart 1]

- STOP (■) → Forward (▶)
- Forward/PAUSE (⏸, ▶) → Forward (▶)
- ▭: indicates final action


▶ OUT
5
Q719 ON
Forward Lamp (PL603) lights
Charging of C734 through R748 begins . . . tension regulator
D
▶ OUT
6
Q712 ON
Q713 ON
Pinch-roller press solenoid (PM603) is ON
IC701
Q737 (normally ON) turns OFF for an instant
After about 0.4 seconds returns to Q737 ON state
Charging of C735
Discharging by R792
Supply reel motor (M601) is initial-energized through R794 and D742
Initial-energization is gradually cancelled (after that, tension regulator takes control)
Supply 70 V to the take-up reel motor (M602) and motor is initial-energized
Take-up reel motor initial-energization is gradually cancelled (after that, fixed torque takes control)
Q738 ON
Q738 OFF
RY702 ON
RY702 OFF
Q710, 711 ON
Q710, 711 OFF
Shifter solenoid (PM604) is ON
Shifter solenoid (PM604) is OFF
Brake OUT
7
Q714, 715 ON
Brake solenoid (PM601, 602) is ON (brake cancelled)
Q706 (normally ON) turns OFF for an instant
After about 0.1 seconds returns to Q706 ON state
Q707, 708 ON
Q707, 708 OFF
Solenoids are initial-energized by high voltage
Solenoids are held by low voltage
Playback muting is ON
Playback muting is cancelled

[Function Button Action Flow Chart 2]

- Forward (▶) → Forward/PAUSE (⏸, ▶)
- ▭: indicates final action



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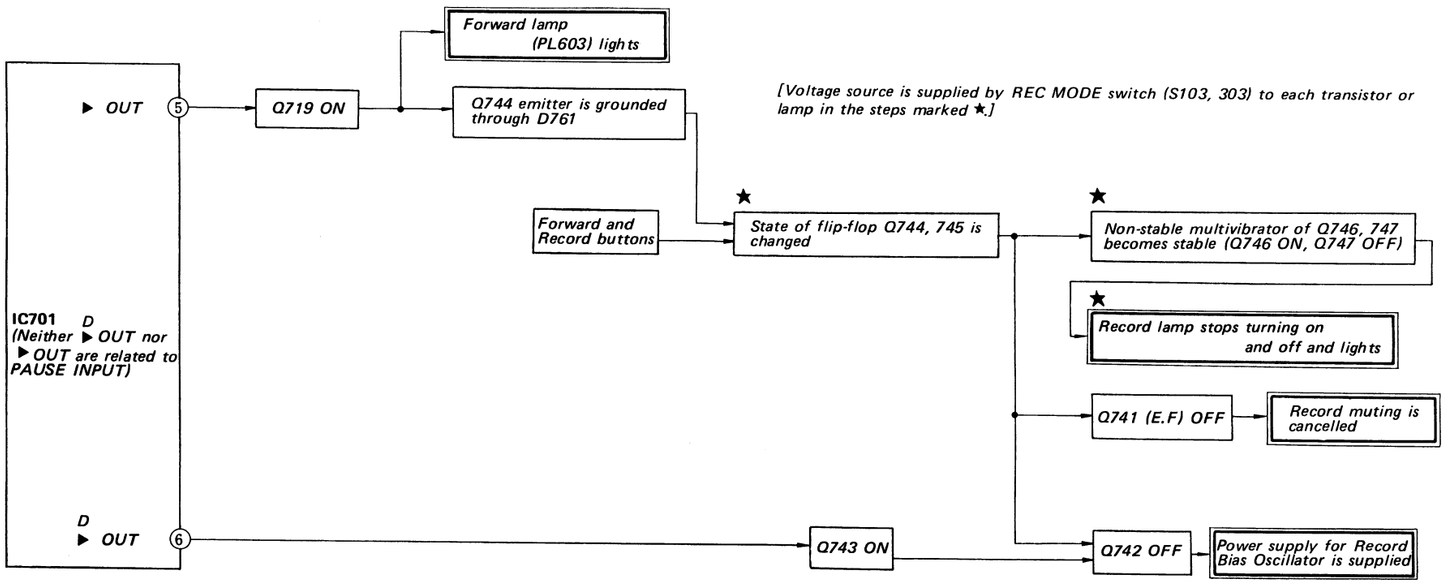
[Function Button Action Flow Chart 3]

- Record/Forward (●, ▶)
- Record/Forward/PAUSE (●, ▶, ❚❚)
- ▭: indicates final action


Forward lamp (PL603) lights
▶ OUT
5
Q719 ON
Q744 emitter is grounded through D761
[Voltage source is supplied by REC MODE switch (S103, 303) to each transistor or lamp in the steps marked ★.]
Forward and Record buttons
★
State of flip-flop Q744, 745 is changed
★
Non-stable multivibrator of Q746, 747 becomes stable (Q746 ON, Q747 OFF)
★
Record lamp stops turning on and off and lights
IC701 D
(Neither ▶ OUT nor ▶ OUT are related to PAUSE INPUT)
Q741 (E.F) OFF
Record muting is cancelled
D
▶ OUT
6
Q743 ON
Q742 OFF
Power supply for Record Bias Oscillator is supplied

Forward mode and Record mode

○ [ ] : final action

○ ----- and [ ]: temporary action

【SWITCH BOARD】

【SYSTEM CONTROL BOARD】

【FUNCTION SWITCH BOARD】

【FUSE BOARD】

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PAUSE mode

○ □ : final action
○ ---- and [ ] : temporary action

【SWITCH BOARD】
【SYSTEM CONTROL BOARD】
【FUNCTION SWITCH BOARD】
【FUSE BOARD】

S601 REEL SIZE 10/2 → 7
S602 TAPE SPEED 19cm 7 1/2→9.5cm 3 3/4
S603 TIMER OFF→ON

Q732 2SC1364 EMITTER FOLLOWER
Q731 2SC1364 SWITCHING
Q730 2SC1364 SWITCHING
Q729,728 2SC1364 FLIP-FLOP
Q727,726 2SC1364 SCHMIDT TRIGGER CIRCUIT
Q725,724 2SC1364 DIFFERENTIAL AMP
D728~733 IT40
D732 SIB01-02
D708~713,715 IT40
D714 IT22
Q704 2SC1364 STABILIZING SUPPLY
Q705 2SC1061 STABILIZING SUPPLY
Q706 2SC1364 SWITCHING
Q707 2SC1364 SOLENOID POWER SUPPLY
Q708 2SC1061 SOLENOID POWER SUPPLY
D716,717 SIB01-02
D734~741,748 IT40
Q733 2SC1364 EMITTER FOLLOWER
Q734 2SC1364 RELAY DRIVER
Q735 2SC1364 EMITTER FOLLOWER
Q736 2SC867 MOTOR DRIVER
D744~747 SIB01-02
D603,602 SIB01-02
D718~720 IT40
D707 SIB01-02
D742,743,749~754 IT40
Q709 2SC1364 SWITCHING
Q710,712,714 2SC1364 SOLENOID DRIVER
Q711,713,715 2SC1475 SOLENOID DRIVER
Q716,737 2SC1364 SWITCHING
Q738 2SC1364 RELAY DRIVER
Q739 2SC867 MOTOR DRIVER
D755~758 SIB01-02
D723~725 IT40
Q717 2SC1364 SWITCHING
Q718~720 2SC1364 LAMP DRIVER
D726,727 IT40
Q722,723 2SC1364 SWITCHING
D768 EQA01-11
IC701 CX738 SYSTEM CONTROL
IC701 (A~H : IN, 1~7 : OUT)
D766,767 IT40
D601 IT40
Q740 2SC1364 SWITCHING
Q741 2SC1364 EMITTER FOLLOWER
Q742,743 2SC1364 SWITCHING
Q744,745 2SC1364 FLIP-FLOP
Q746,747 2SC1364 ASTABLE MULTIVIBRATOR
Q748 2SC1364 SWITCHING
D759~765 IT40
Q701,703 2SC1364 STABILIZING POWER SUPPLY
Q702 2SC1061 STABILIZING POWER SUPPLY
D706 EQA01-11R
D705 SIB01-02
D701~704 SIB01-02
D769 1S1555
M601 IC638R SUPPLY REEL
M602 IC638R TAKE-UP REEL
CN601 REMOTE CONTROL
F602 2.5A
F601 2.5A
PLAYBACK MUTING ON
PLAYBACK MUTING OFF
REC MONITOR MUTE
STOP
BRAKE ON

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Fast Forward mode

: final action

and : temporary action

【SWITCH BOARD】

【SYSTEM CONTROL BOARD】

【FUNCTION SWITCH BOARD】

【FUSE BOARD】

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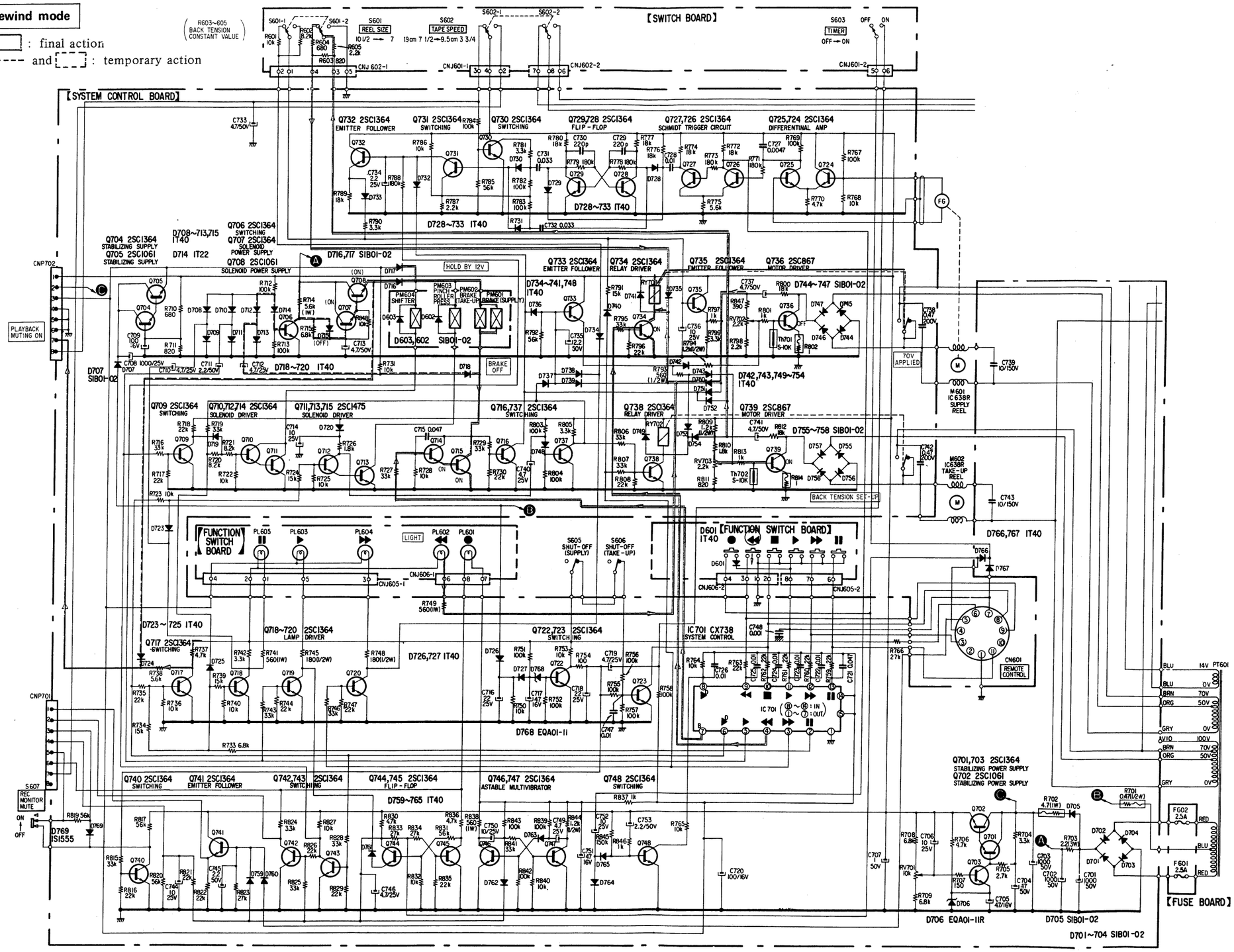
Rewind mode

○ [ ] : final action

○ ----- and [ ] : temporary action



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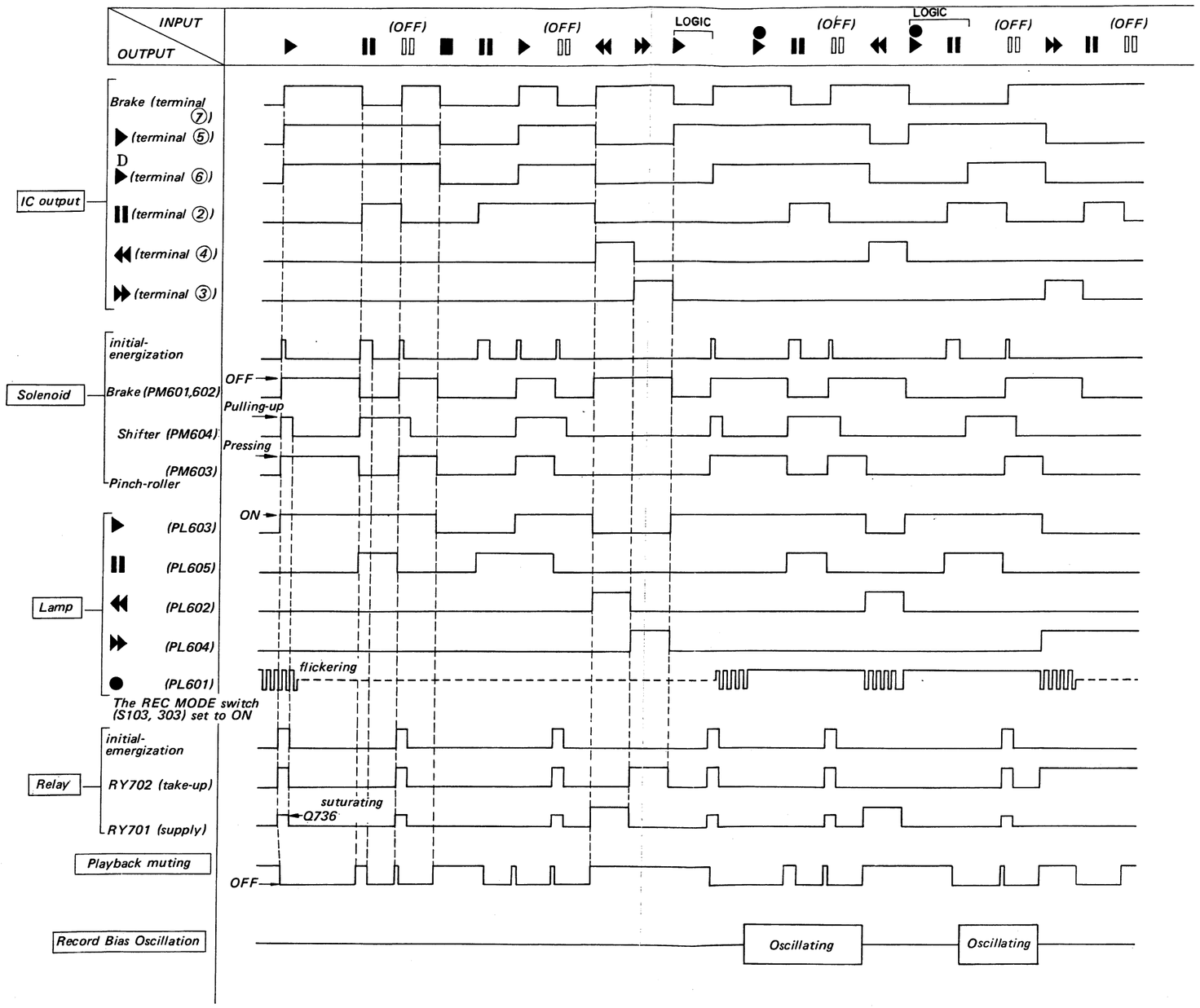
20. Function Button Action Time Chart



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